HISTORY INFORMATION FOR THE FOLLOWING MANUAL:

SERVICE MANUAL

SAT-T60 RM-Y809

SAT-T60

U.S. Model

Canadian Model

ORIGINAL MANUAL ISSUE DATE: 9/2000

ALL REVISIONS AND UPDATES TO THE ORIGINAL MANUAL ARE APPENDED TO THE END OF THE PDF FILE.

REVISION DATE	REVISION TYPE	SUBJECT
9/2000	No revisions or updates are applicable at this time.	
9/2002	Reissue complete manual - Updated	

9-965-899-02

SONY

SERVICE MANUAL

SAT-T60 RM-Y809

SAT-T60

U.S. Model

Canadian Model

SAT-T60

RM-Y809

SPECIFICATIONS

Inputs and Outputs:

Video Out: S-Video 4-pin mini DIN (1)
Video Out: Composite Video RCA (2)
Audio Line Out: Stereo L/R RCA (2 pairs)
Satellite In: F-Connector Female (2)
VHF/UHF In: F-Connector Female (1)
VHF/UHF (SAT) Out: F-Connector Female (1)
Digital Audio Out: Optical (1)
Telephone: RJ-11 Female, 2 wire (1)
Control Out: 3.5 mm Mini Jack Sockets (2)

General:

Power Requirements: 120 V AC, 60 Hz
Local TV Antenna: ANJ-AA1
Power Consumption: 60 W
Operating Temperature: 21°C to 45°C (70°F to 113°F)
Operating Humidity: 5% to 80%
Dimensions: Approx. 381 x 76 x 325 mm (w/h/d)
Approx. 15” x 3” x 12 13/16” (w/h/d)
(including projecting parts and controls)
Mass: Approx. 4.6 kg (10 lbs.)

Supplied Accessories:

Remote Control (1)
Size AA (R6) Batteries (1)
AC Power Cord (1)
RF Coaxial Cable (1)
Audio/Video Cable (1)
IR Control Cable (1)
S-Video Cable (1)
Phone Cord (1)
Phone Splitter (1)
Access Card (1)

Optional Sony-Brand Digital Satellite Receiver Accessories:

Installation Kit: ANJ-DS2
Amplifier: EAC-DA1
Diplexer: EAC-DD1
Voltage Switch: EAC-DV2
Satellite Dish Antenna: SAN-18D4
SAN-24MD1

9-965-899-02

DIRECTV

TiVo™

SONY®

TABLE OF CONTENTS

SECTION TITLE **PAGE**

Safety Check-Out Instructions 4

1. DISASSEMBLY
- 1-1. Top Cover Removal 5
- 1-2. Front Panel Removal 5
- 1-3. Back Panel Information 5
- 1-4. Hard Drive Assembly Removal 6

2. DIAGRAMS
- 2-1. Block Diagram 7
- 2-2. Main Board Schematic Diagram 9

3. EXPLODED VIEWS
- 3-1. Front View 33
- 3-2. Rear View 34
- 3-3. SAN-18D3 35
- 3-4. SAN-24MD1 35

4. ELECTRICAL PARTS LIST 36

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly soldered connections. Check the entire board surface for solder splashes and bridges.

2. Check the interboard wiring to ensure that no wires are "pinched" or touching high-wattage resistors.

3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.

4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.

5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.

6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.

7. Check the B+ and HV to see if they are specified values. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.

8. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

Leakage Test

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instructions.

2. A battery-operated AC milliampmeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low voltage scale. The Simpson's 250 and Sanwa SH-63TRD are examples of passive VOMs that are suitable. Nearly all battery-operated digital multimeters that have a 2 VAC range are suitable (see Figure A).

How to Find a Good Earth Ground

A cold-water pipe is a guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms.

If a cold-water pipe is not accessible, connect a 60- to 100-watt trouble-light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side on the line; the lamp should light at normal brilliance if the screw is at ground potential (see Figure B).

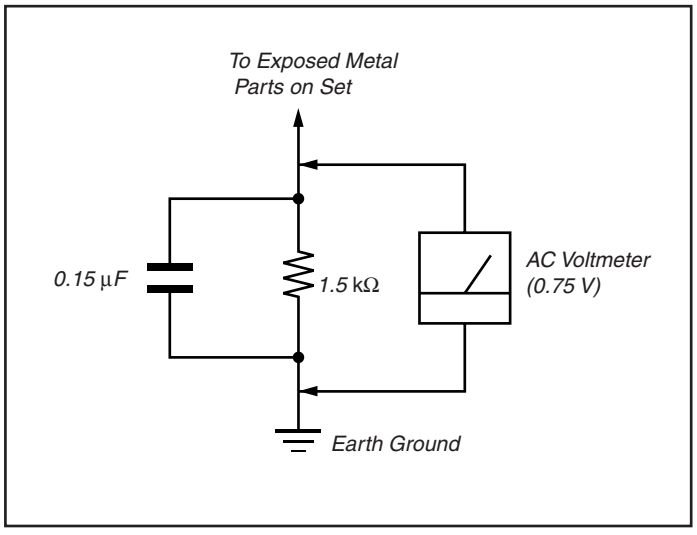


Figure A. Using an AC voltmeter to check AC leakage.

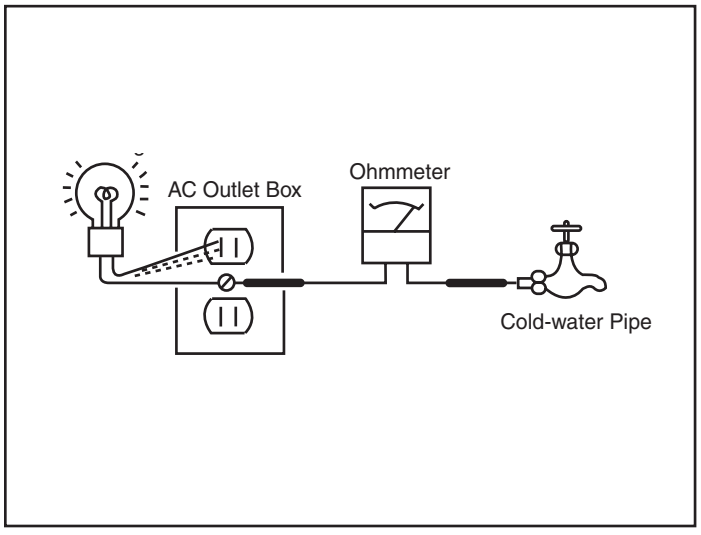
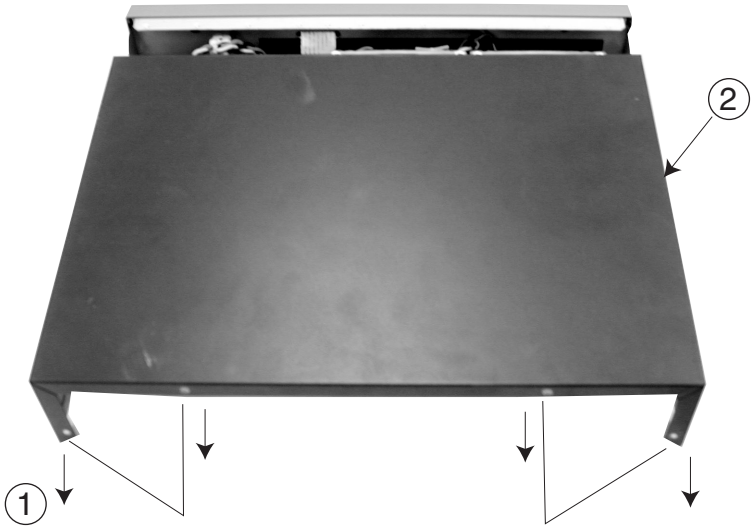


Figure B. Checking for earth ground.

SECTION 1: DISASSEMBLY

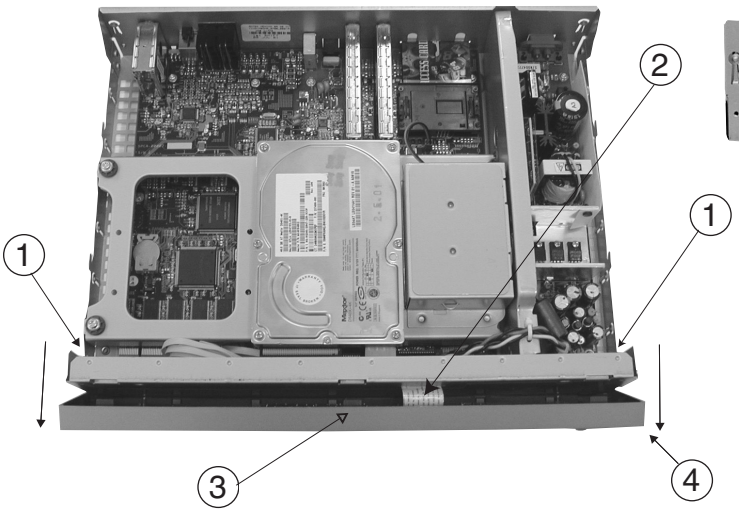
1-1. TOP COVER REMOVAL



(1) Remove 4 screws (Type #m 3 x 0.5 x 6, PH, TORX) from rear of cover.

(2) Carefully pull cover towards back of unit to release and remove.

1-2. FRONT PANEL REMOVAL



NOTE: Most units will only contain a single HDD

(1) Remove (2) screws (+BVTP 3 x 8 Type 2 IT-3)

(2) Detach ribbon cable/harness connecting front panel to main board.

(3) Press down on middle of panel to loosen clips.

(4) Pull panel forward to release.

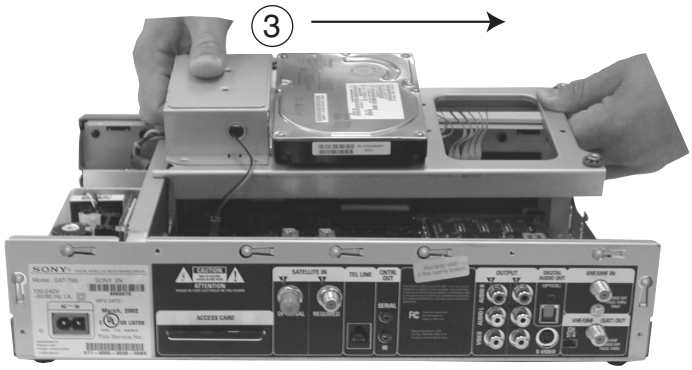
1-3. BACK PANEL INFORMATION

1-4. HARD DRIVE ASSEMBLY REMOVAL

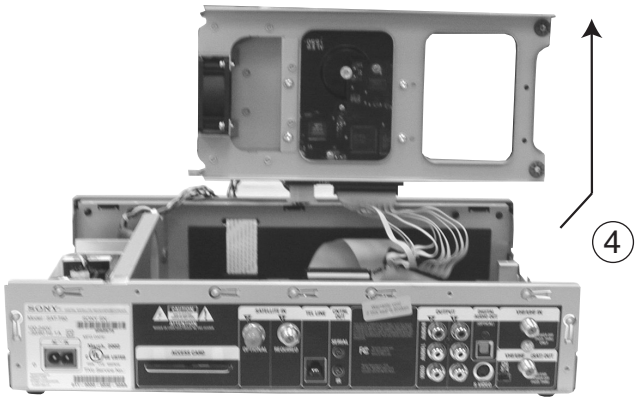
NOTE: If HDD is mounted in position farthest from the Fan Assy., move to position closest to the Fan Assy.

(1) Remove screws #6-32 x 0.62, PH, TORX (2)

(2) Lift hard drive assembly up at a 45° angle to release hooks from side wall.



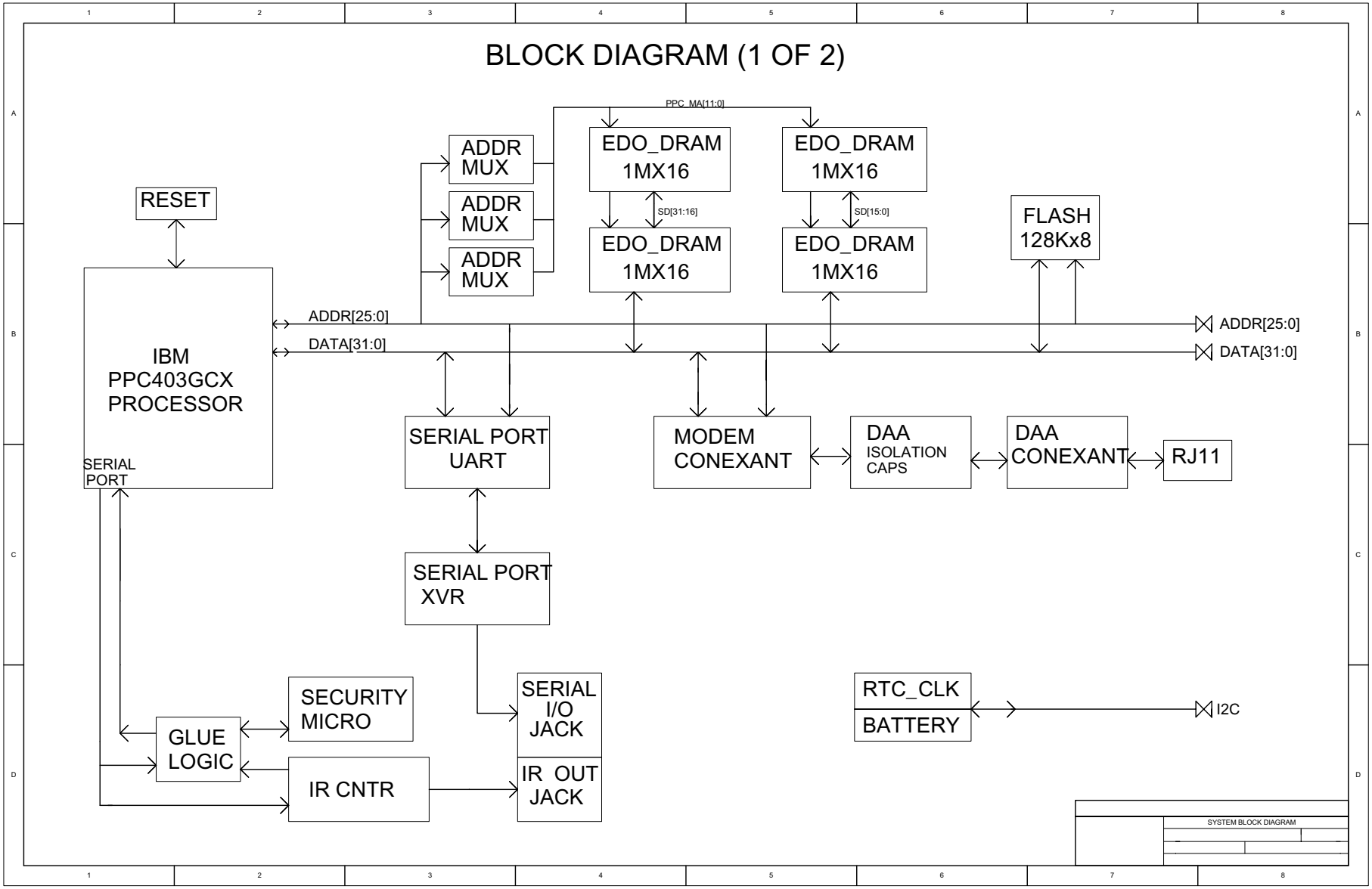
(3) Lift hard drive assembly away from unit.



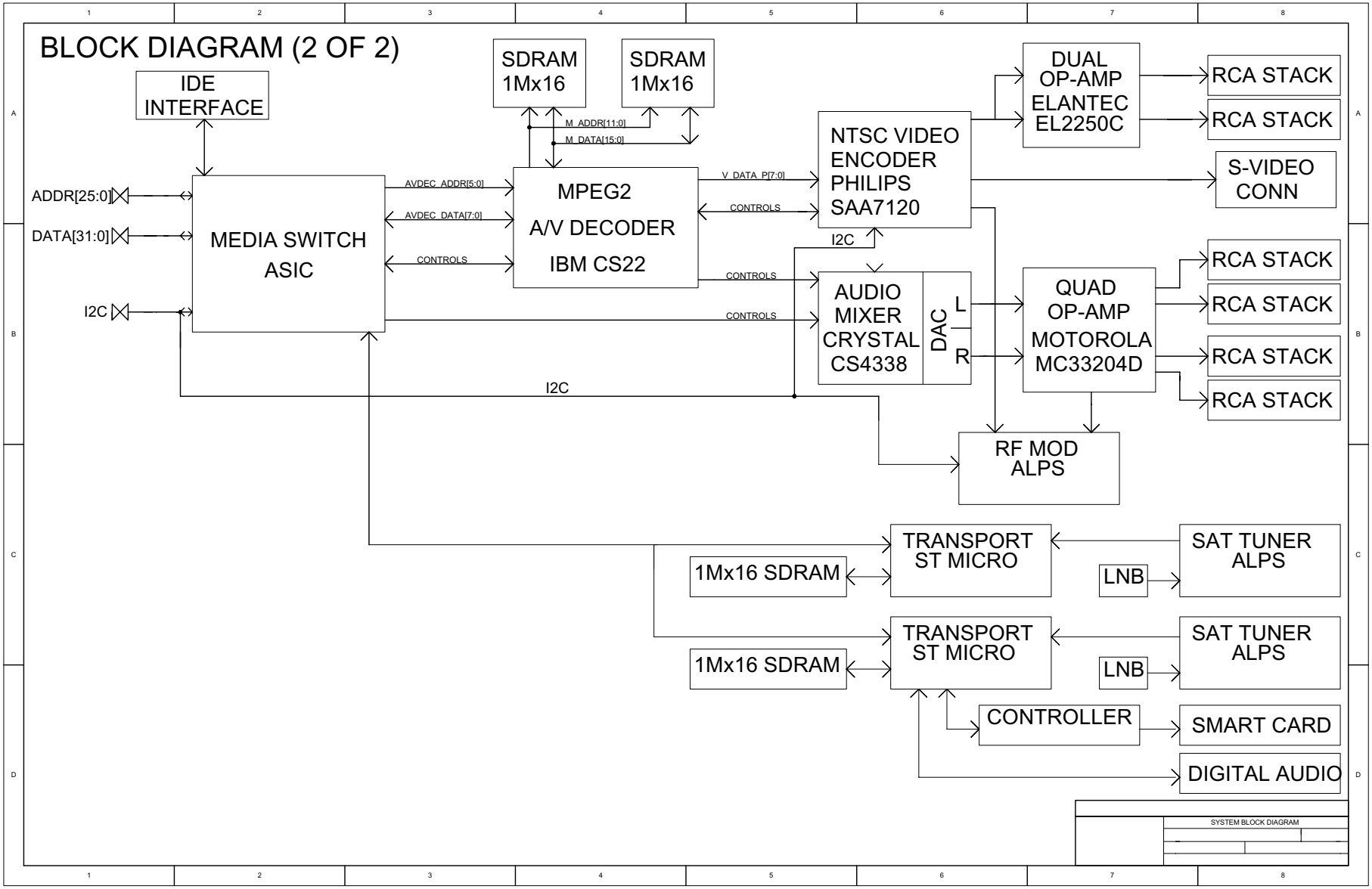
(4) Turn hard drive assembly up and over to service main board.

SECTION 2: DIAGRAMS

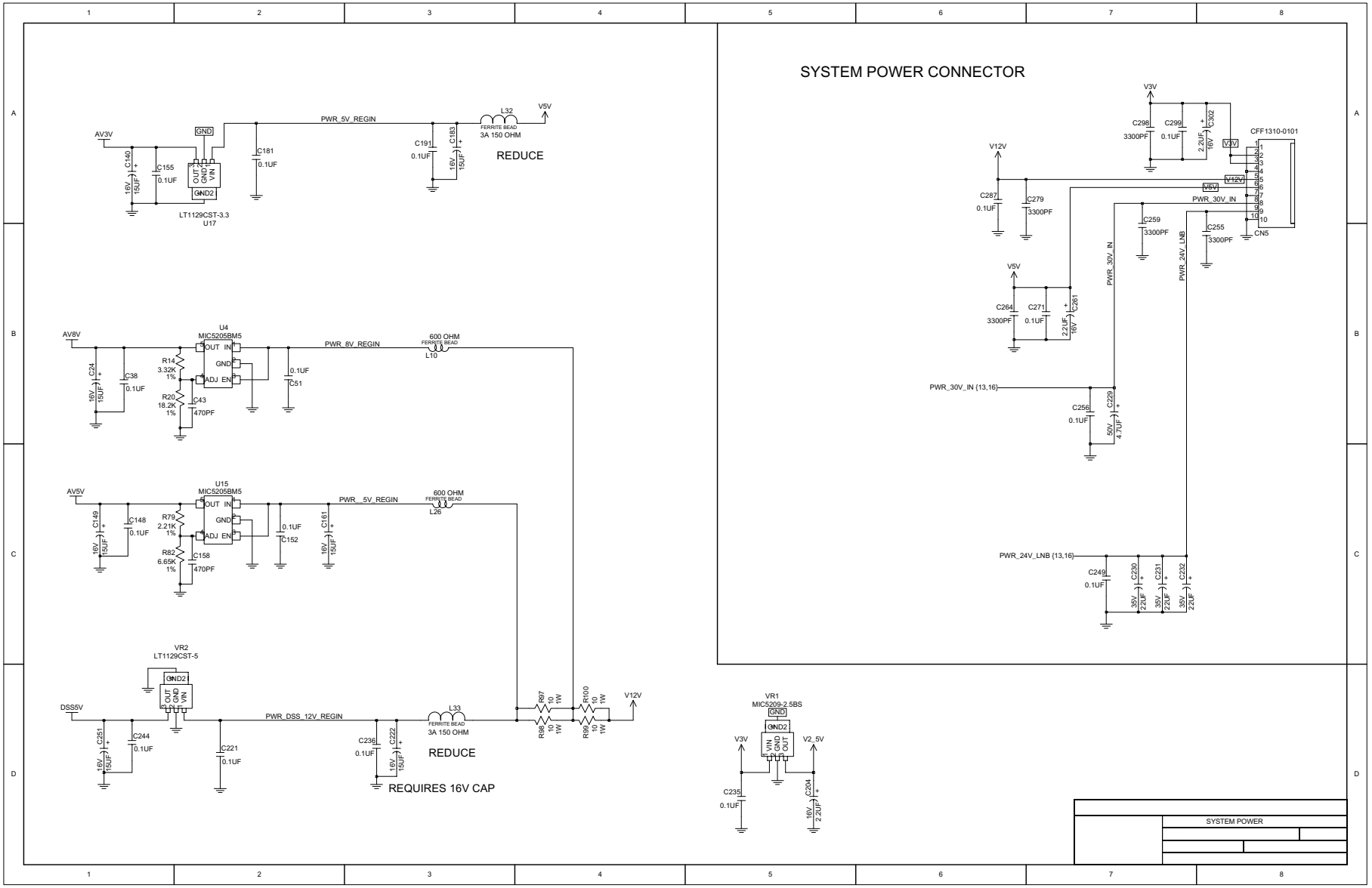
2-1. BLOCK DIAGRAM (PAGE 1 OF 2)



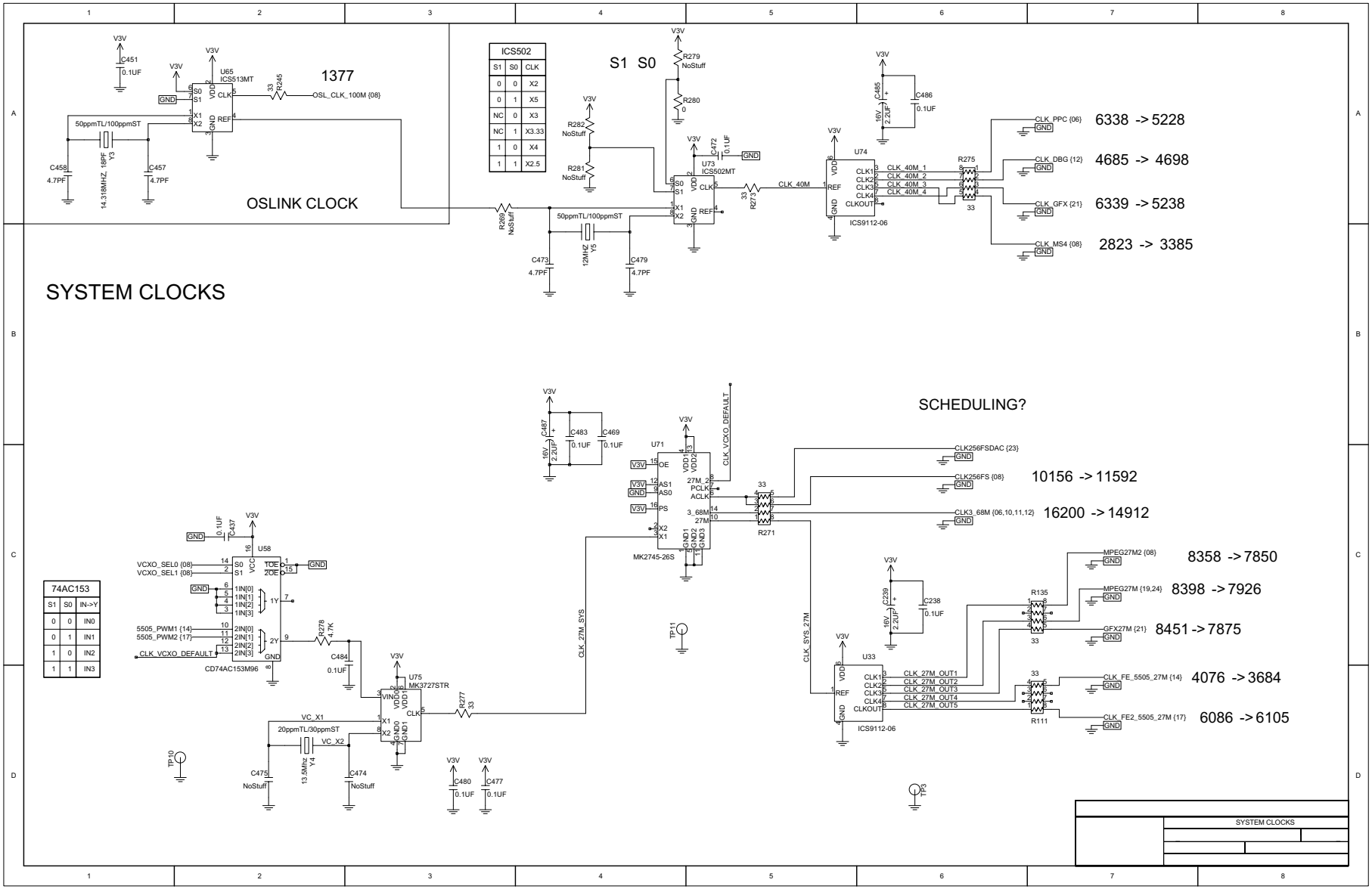
BLOCK DIAGRAM (PAGE 2 OF 2)



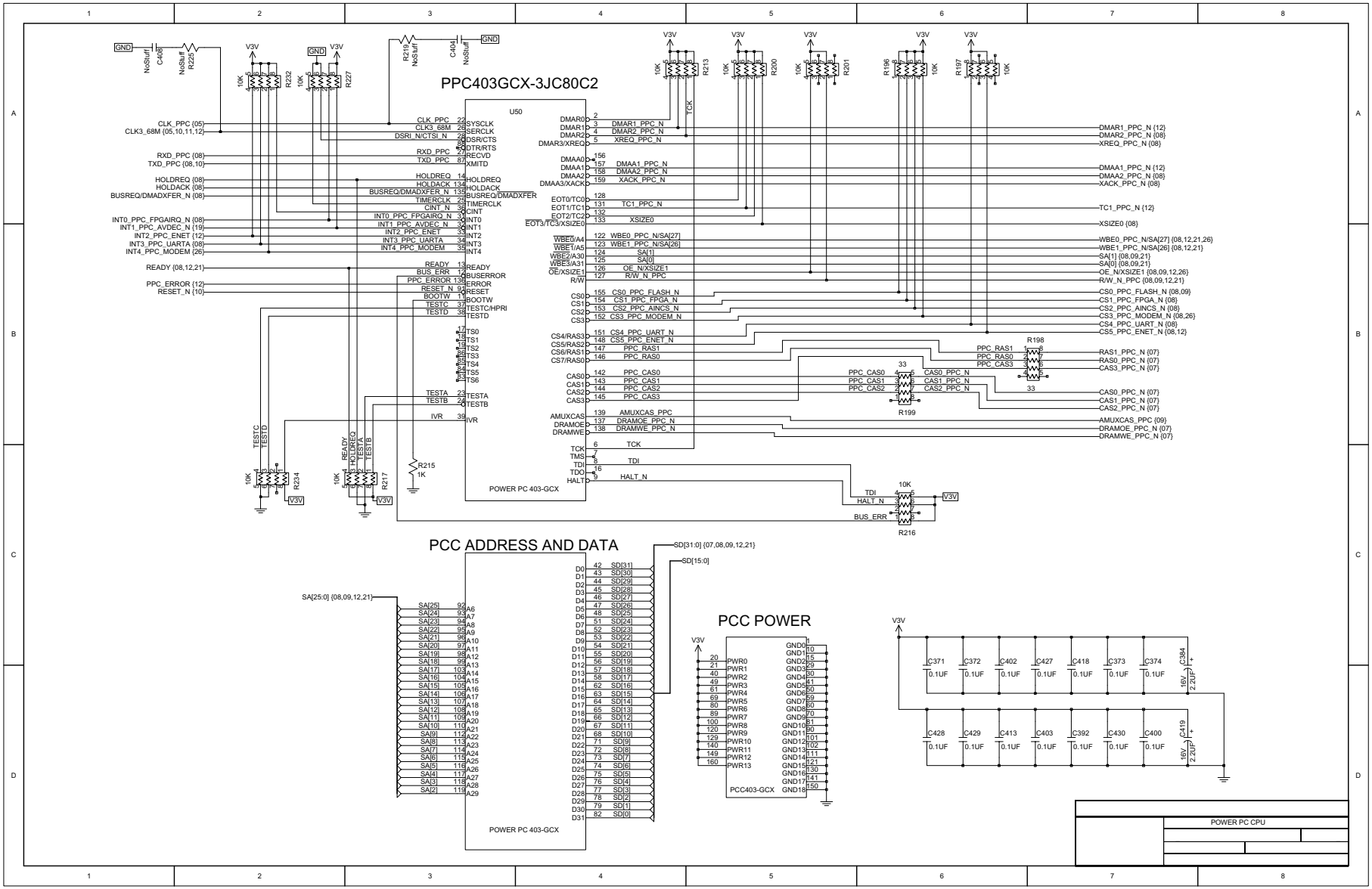
2-2. MAIN BOARD SCHEMATIC DIAGRAM (PAGE 1 OF 24)



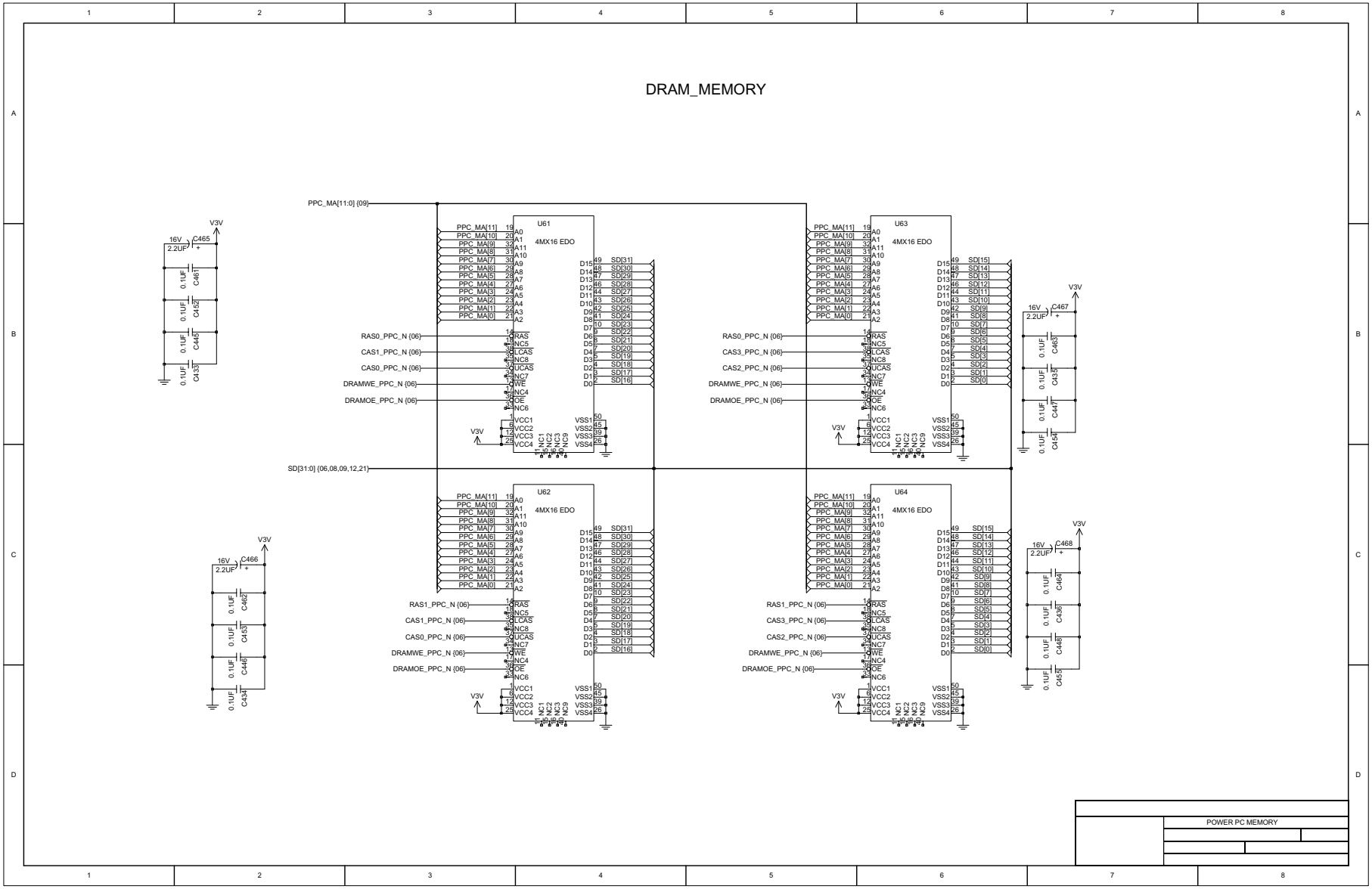
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 2 OF 24)



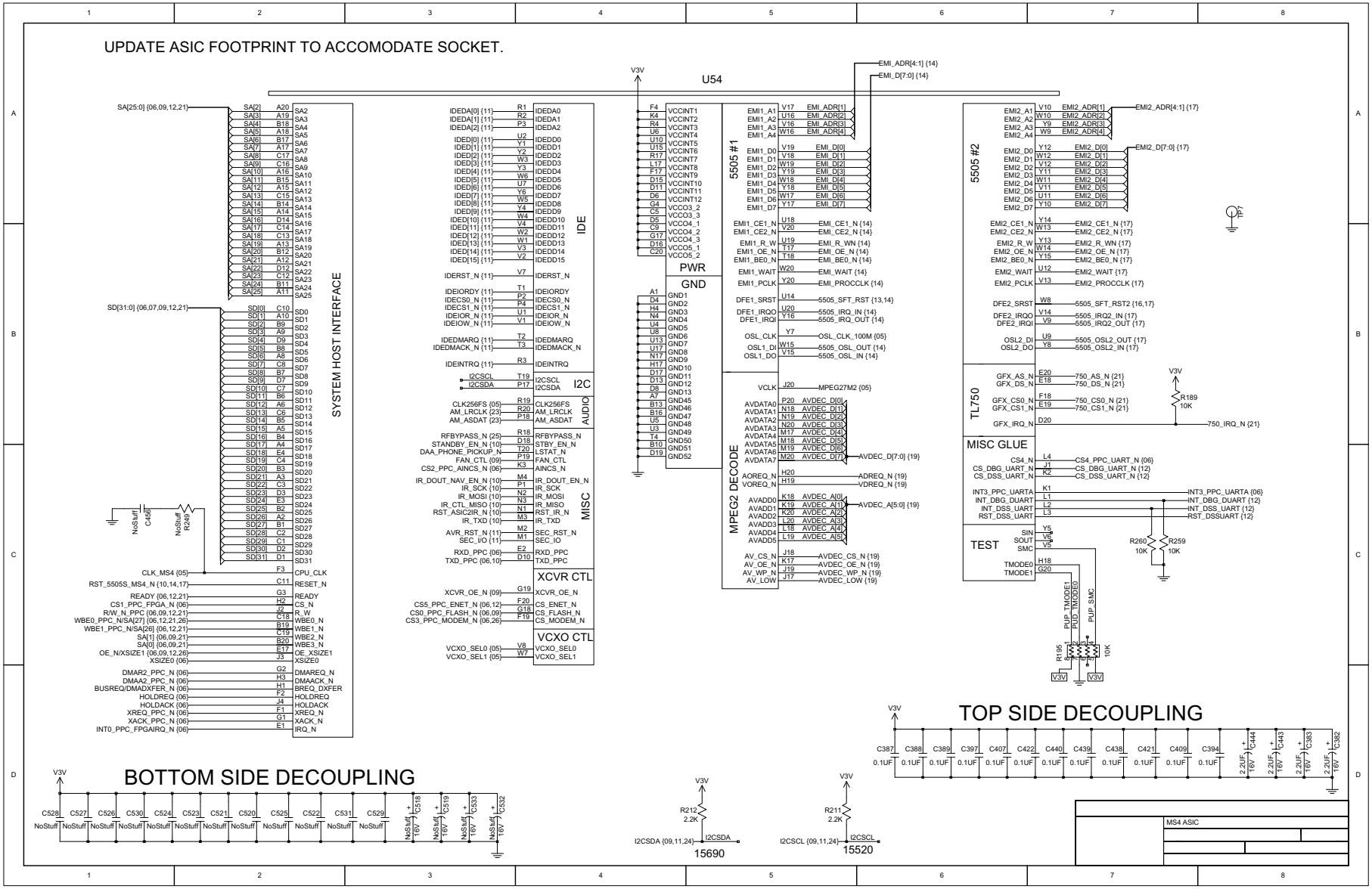
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 3 OF 24)



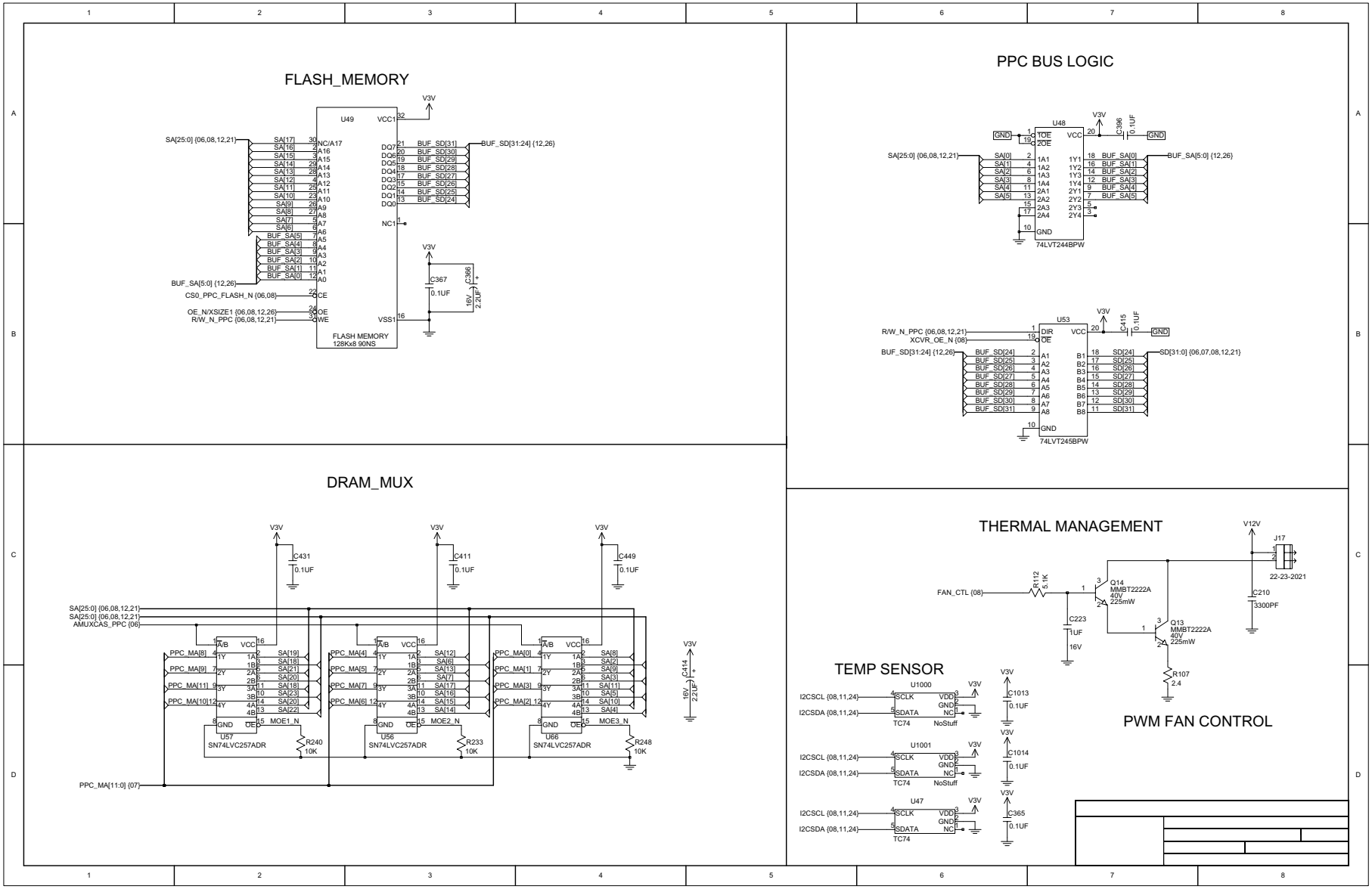
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 4 OF 24)



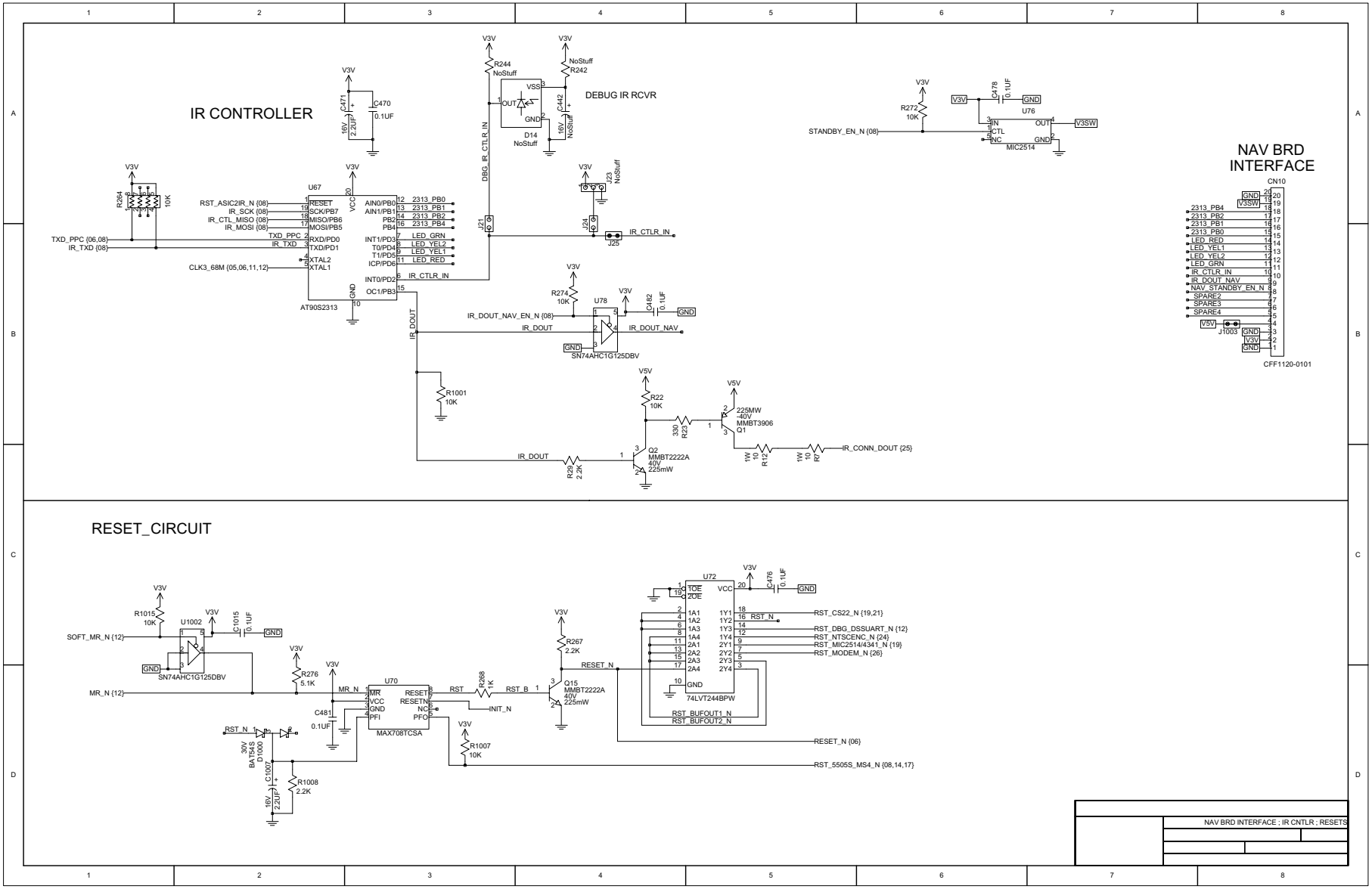
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 5 OF 24)



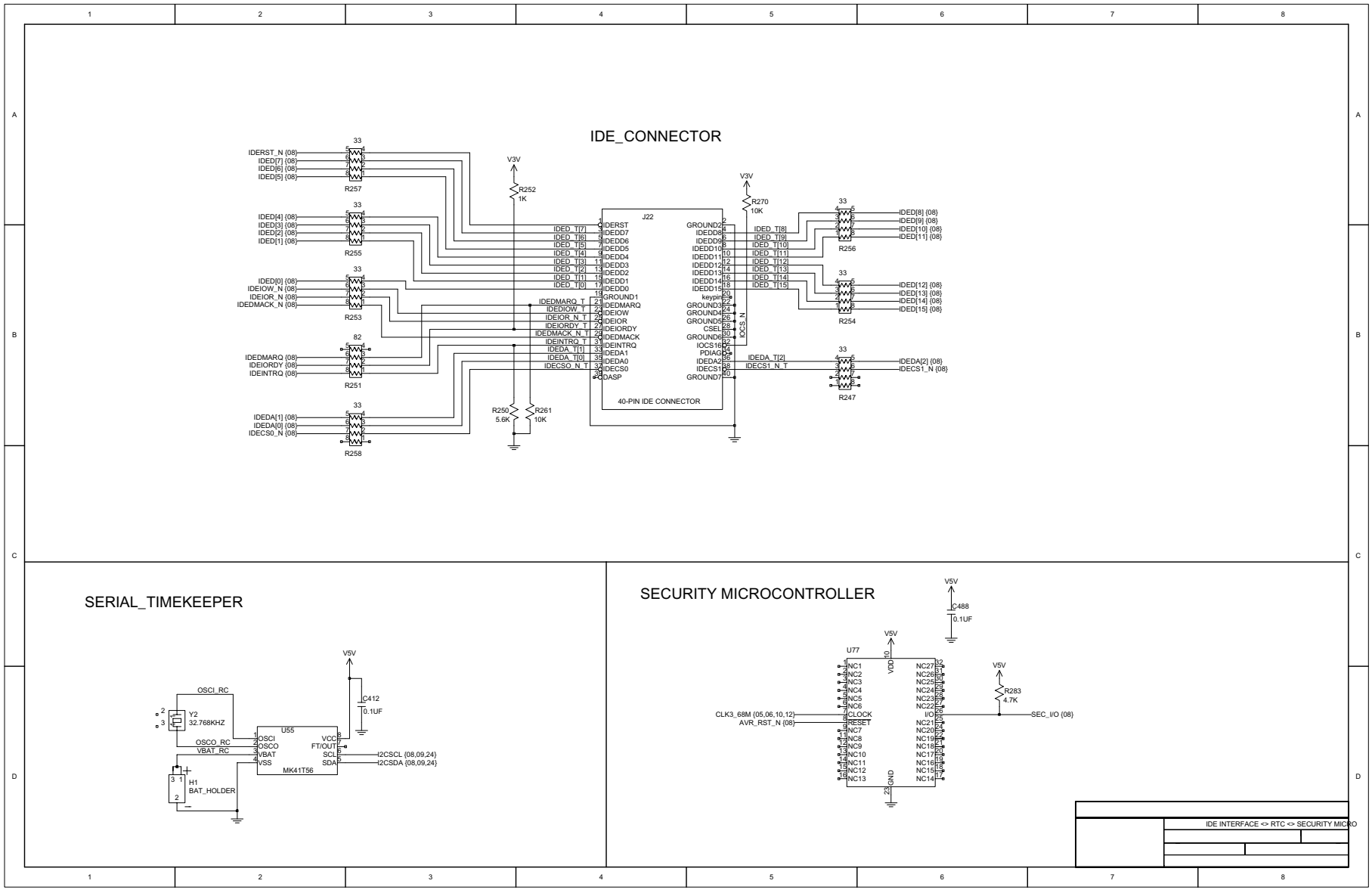
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 6 OF 24)



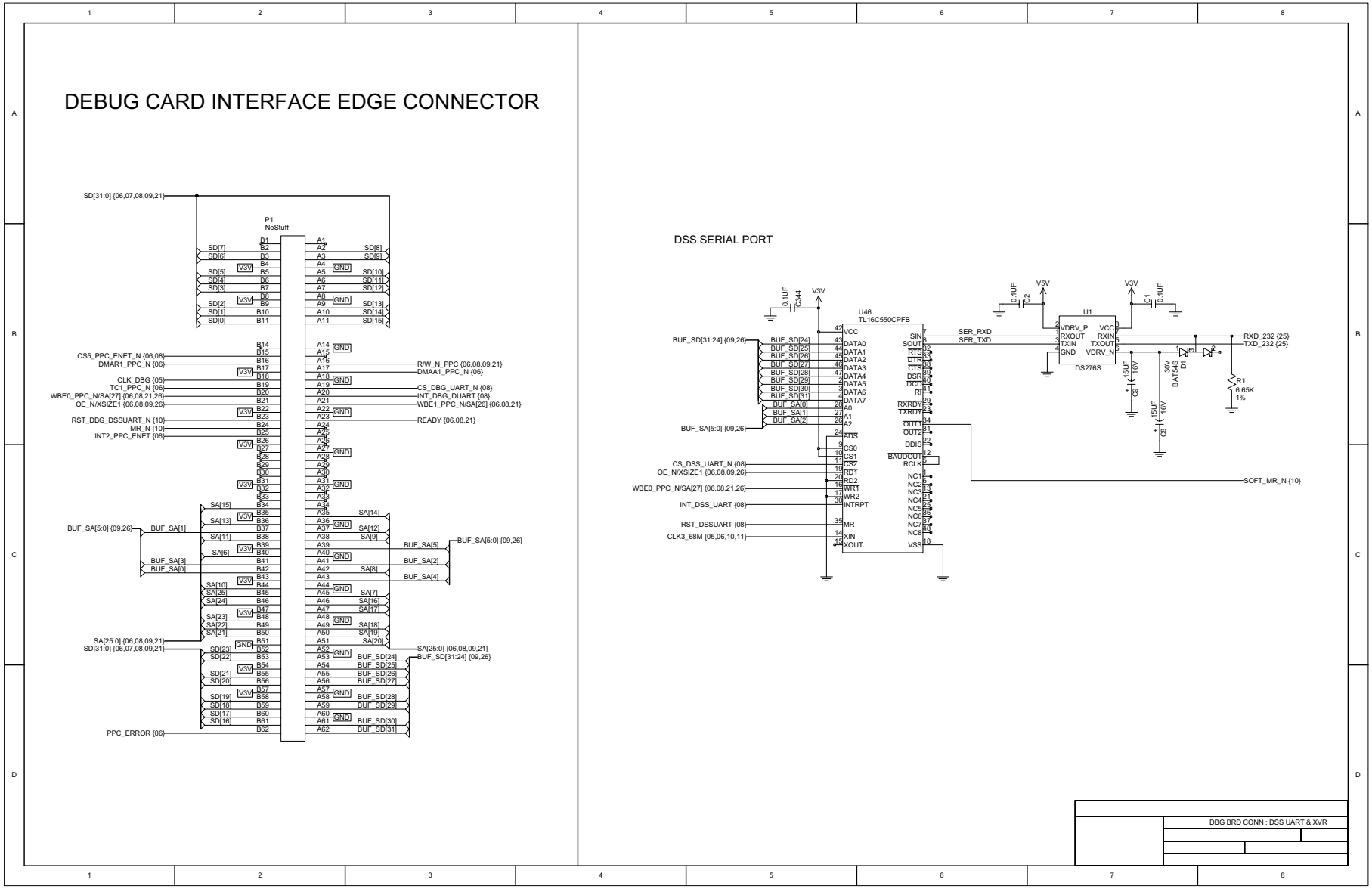
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 7 OF 24)



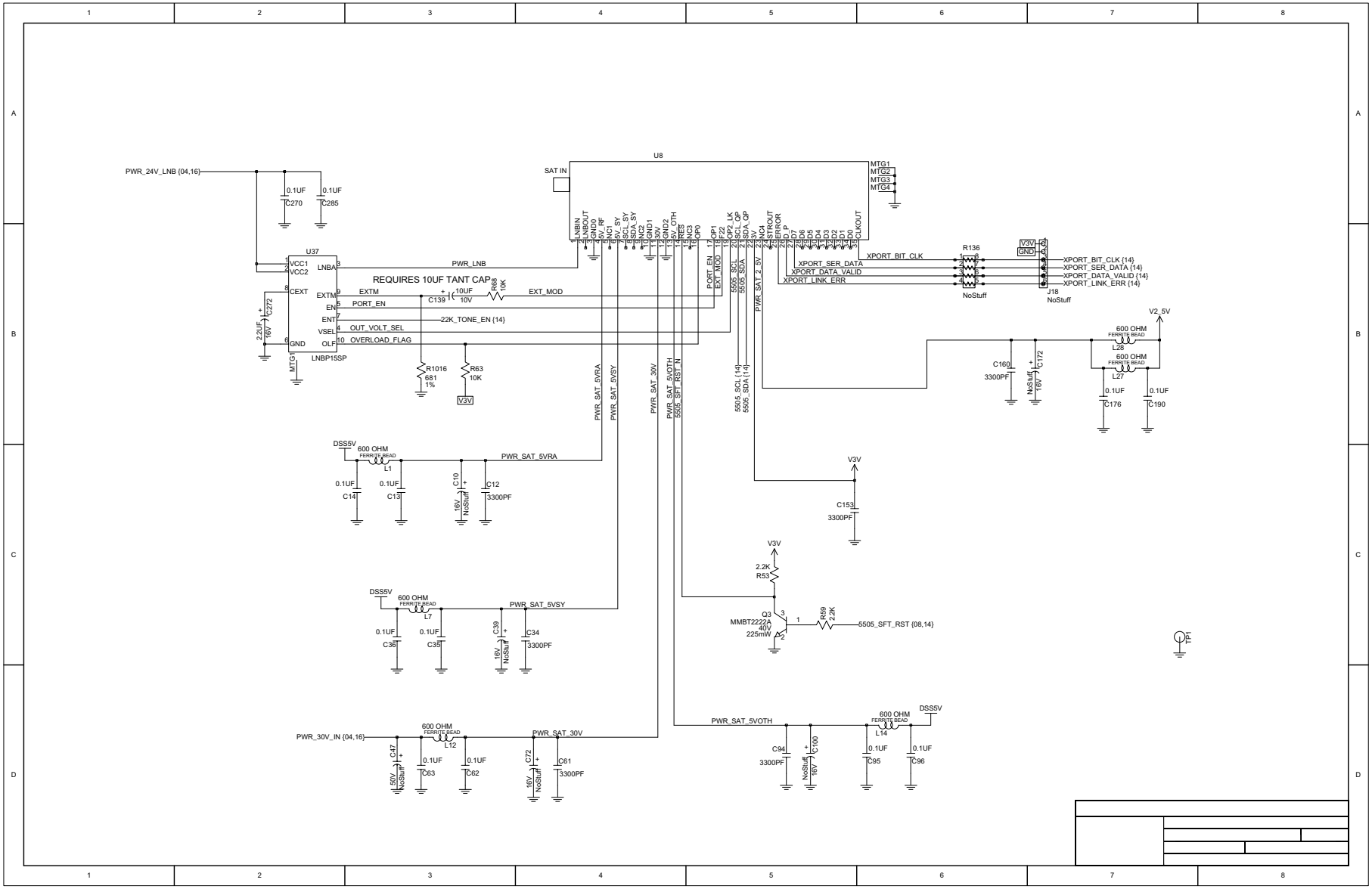
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 8 OF 24)



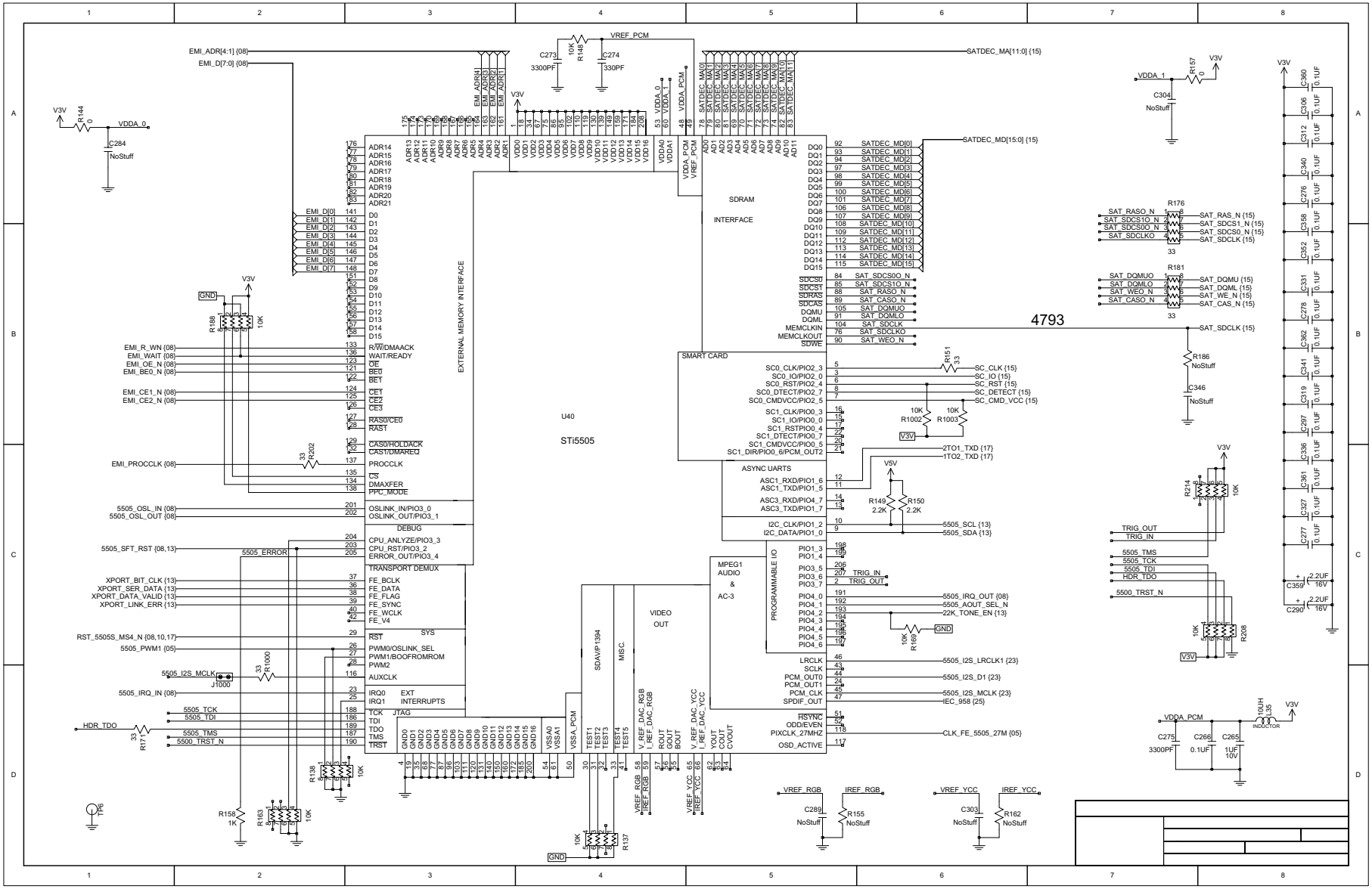
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 9 OF 24)



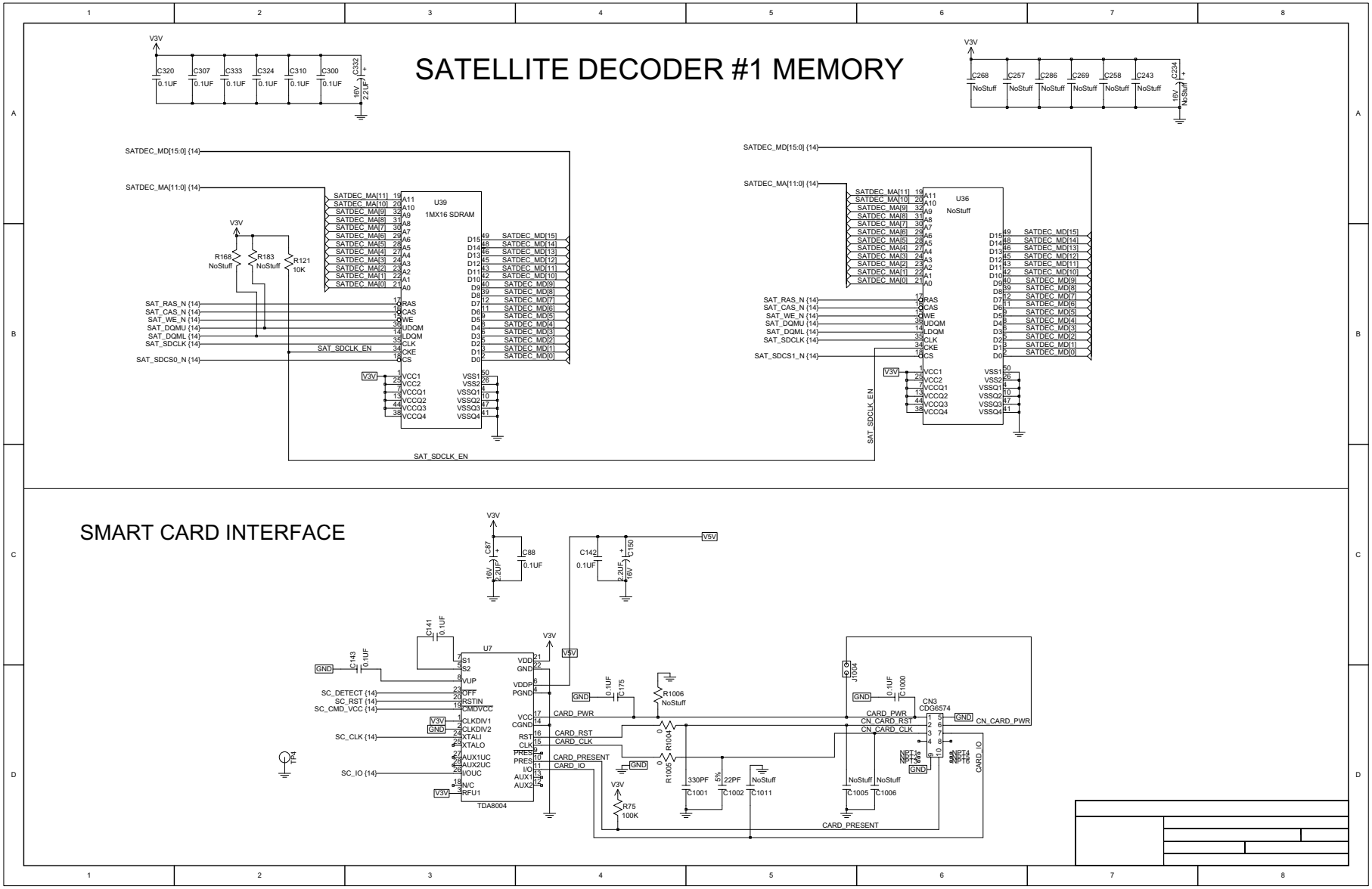
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 10 OF 24)



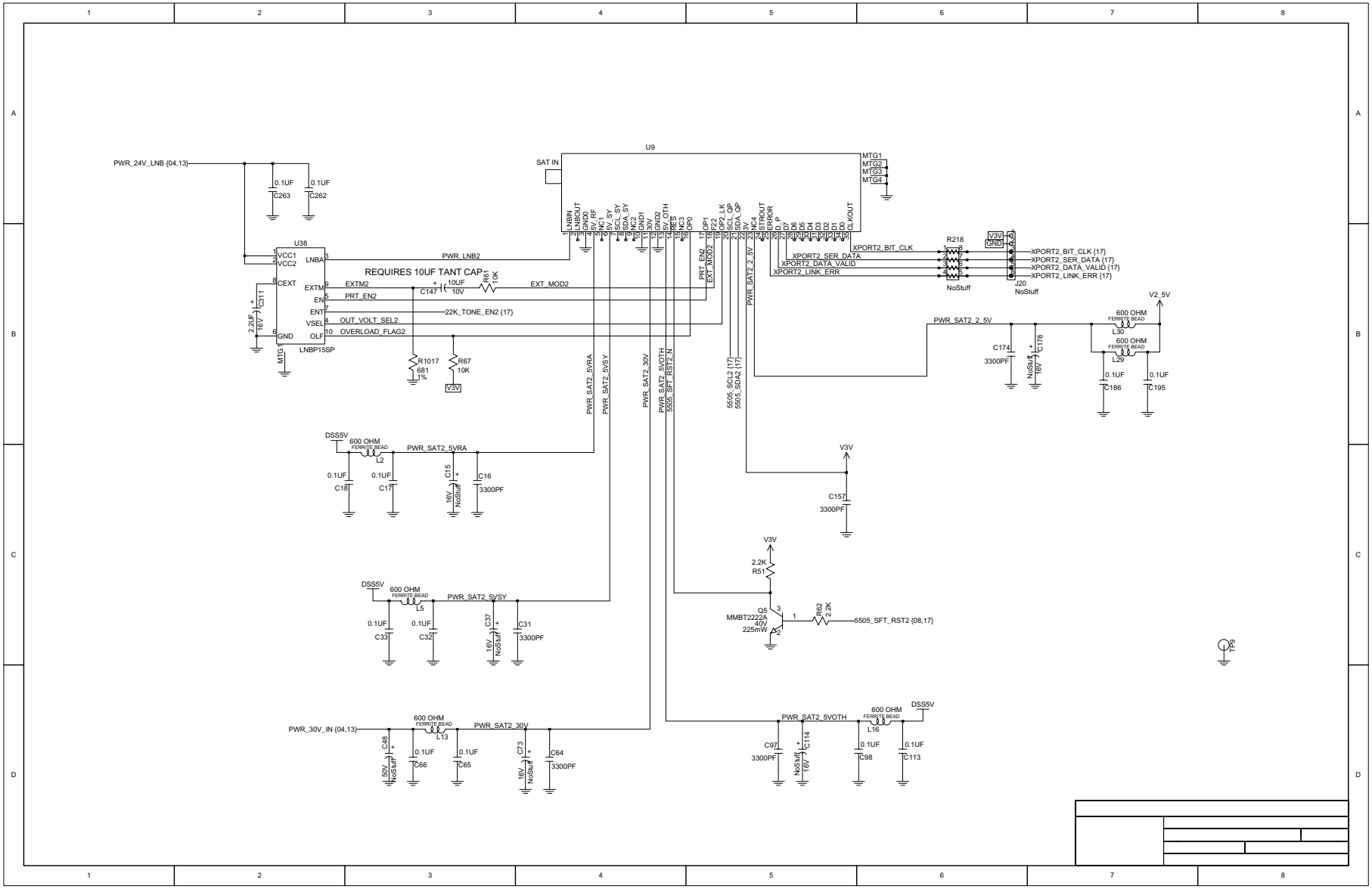
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 11 OF 24)



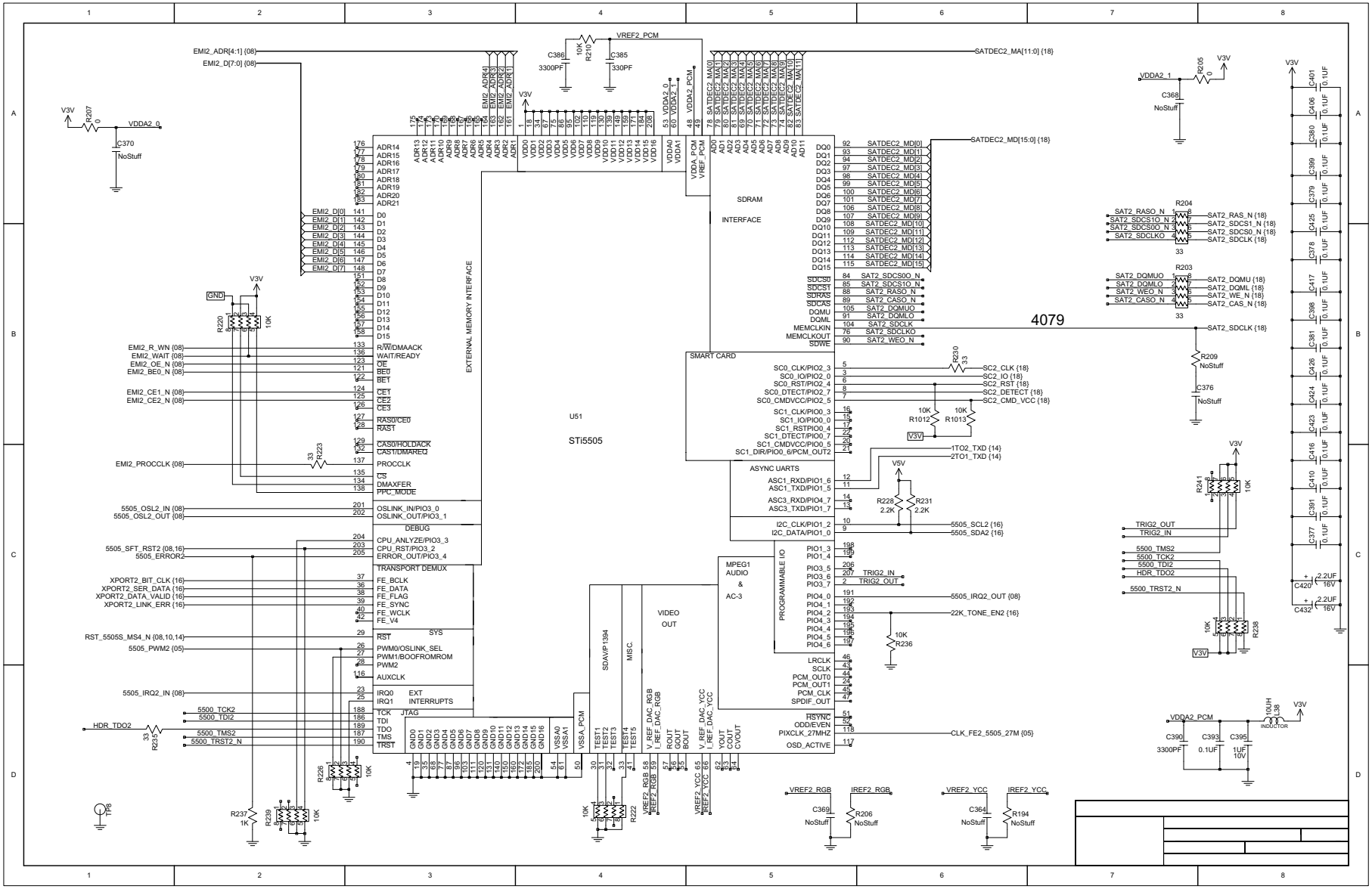
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 12 OF 24)



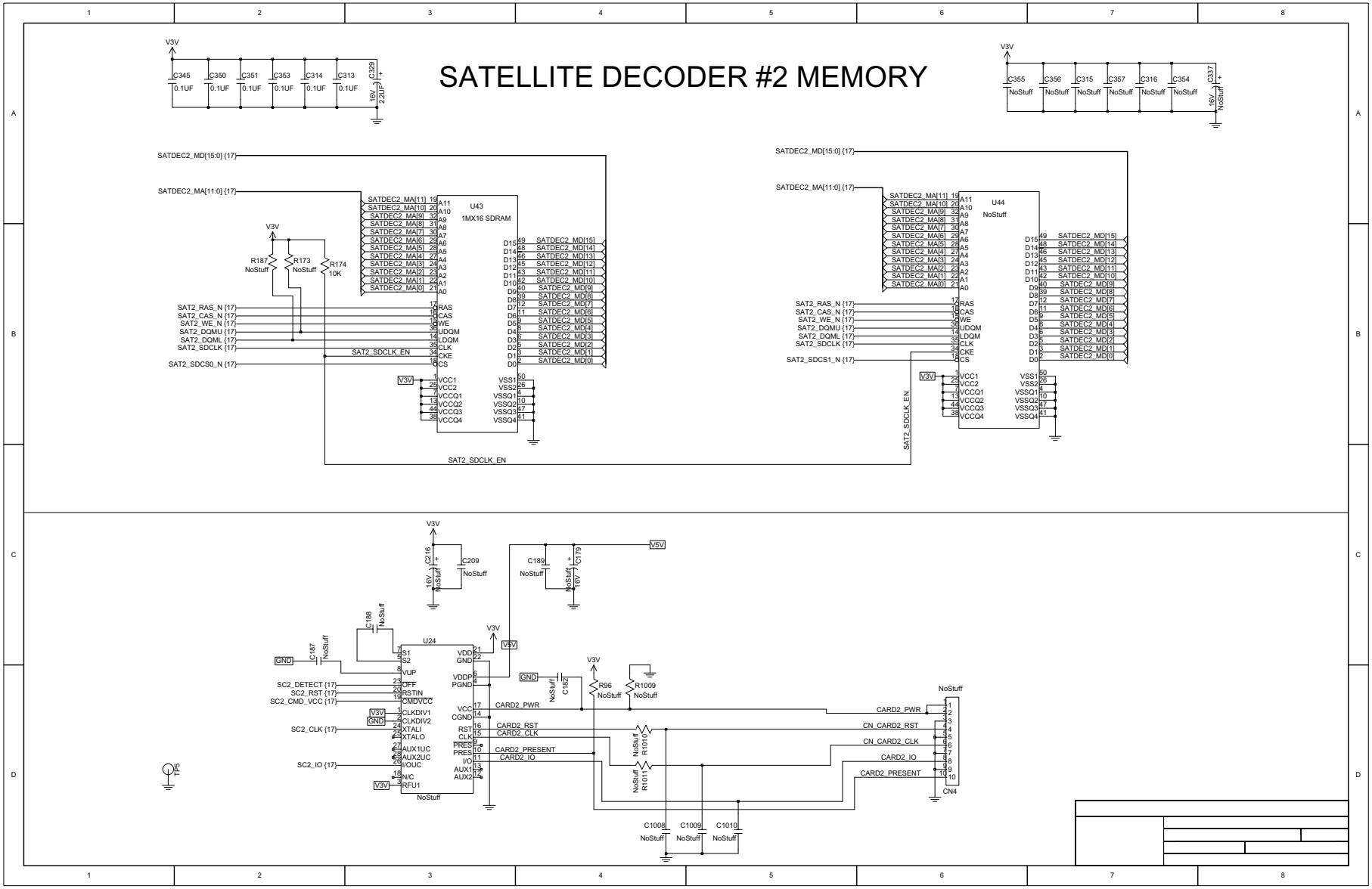
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 13 OF 24)



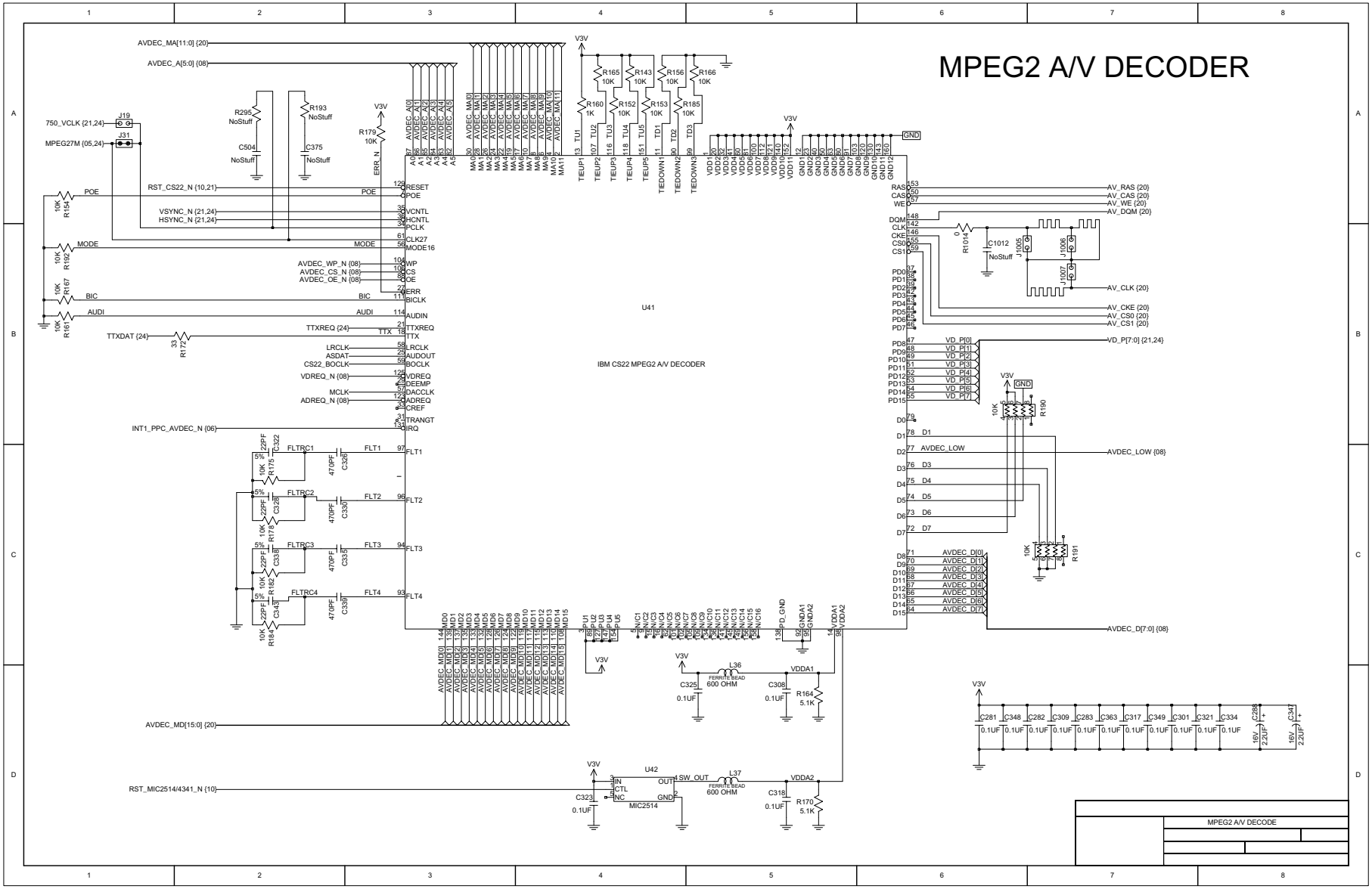
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 14 OF 24)



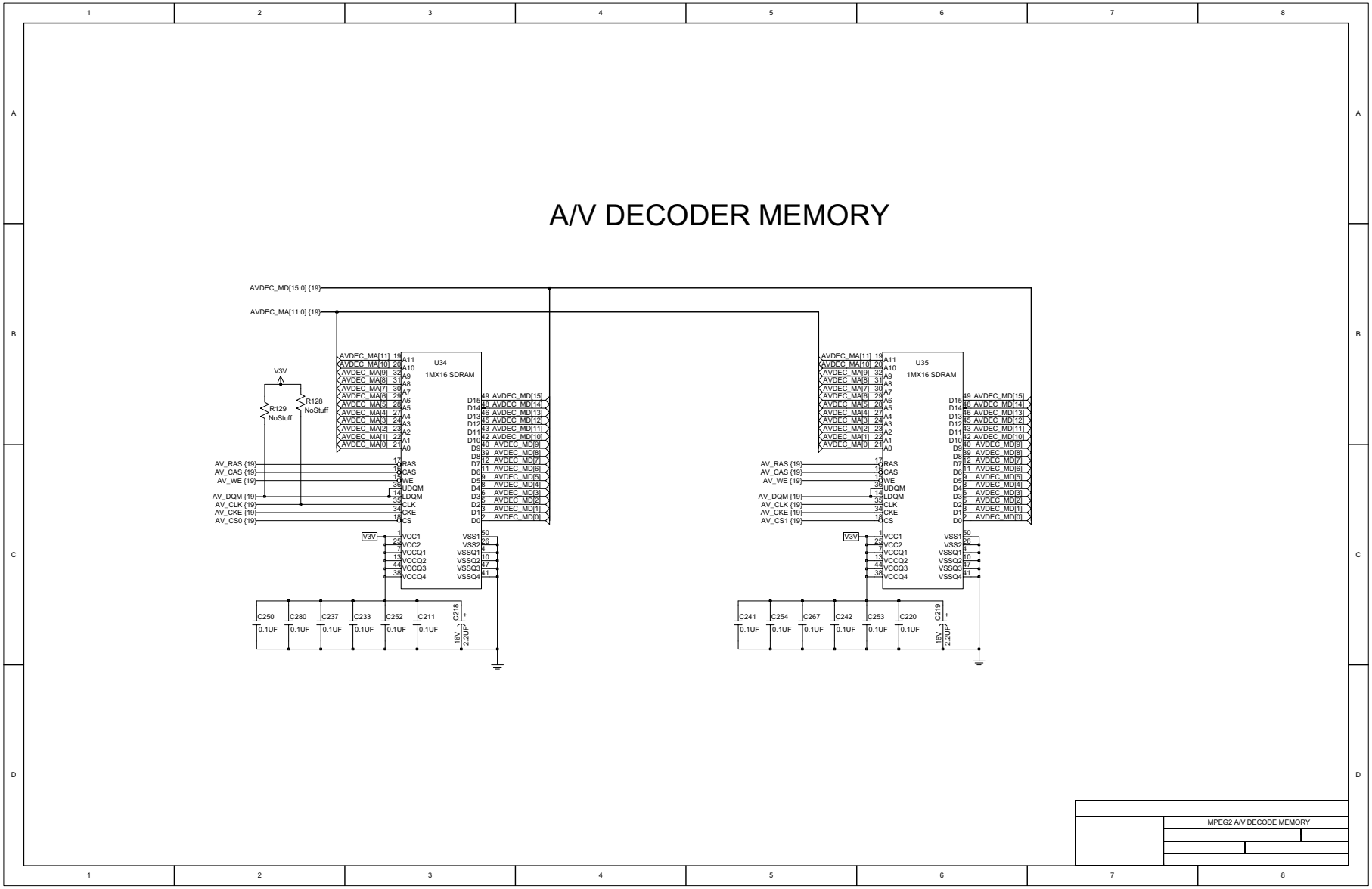
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 15 OF 24)



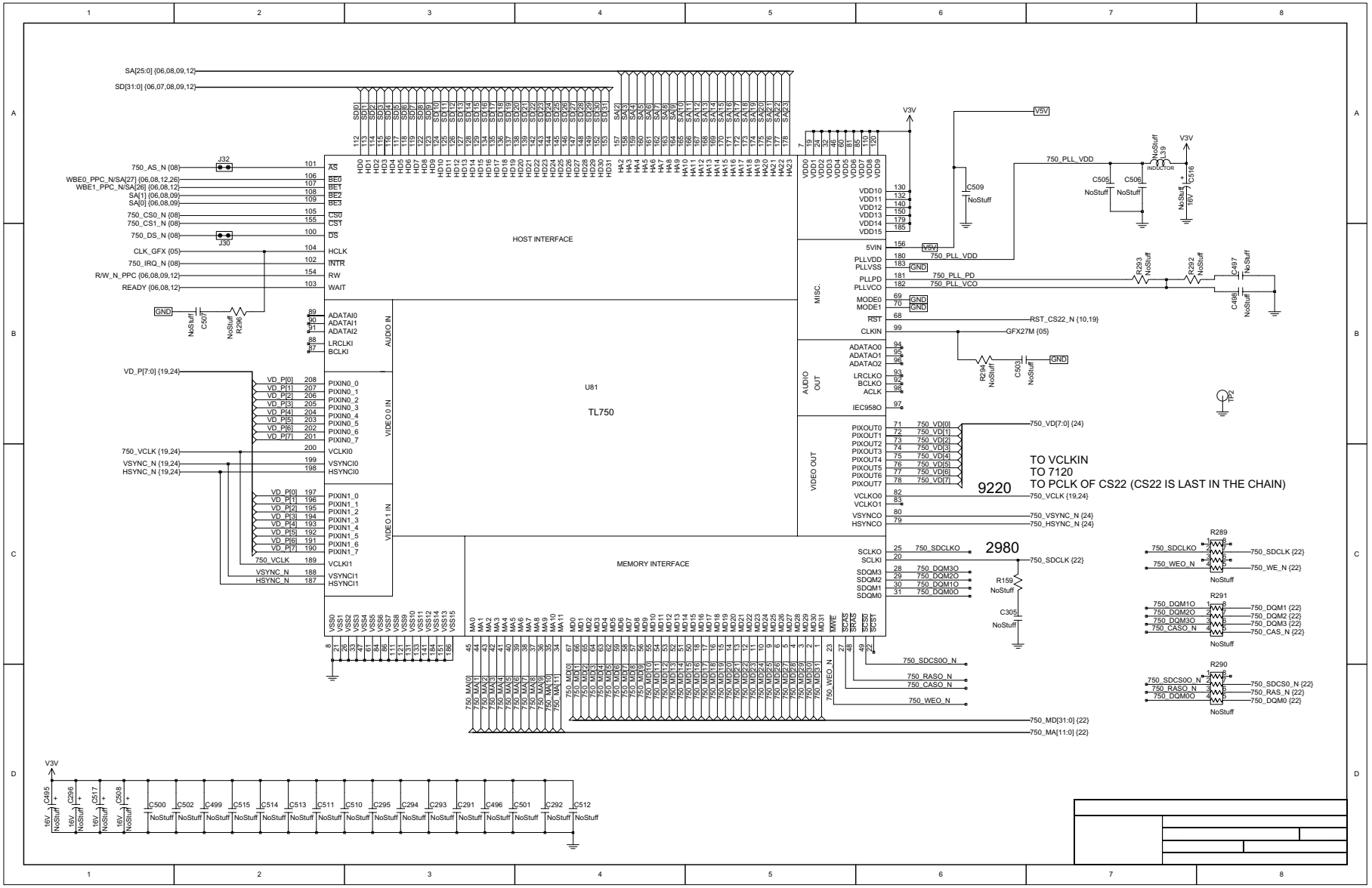
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 16 OF 24)



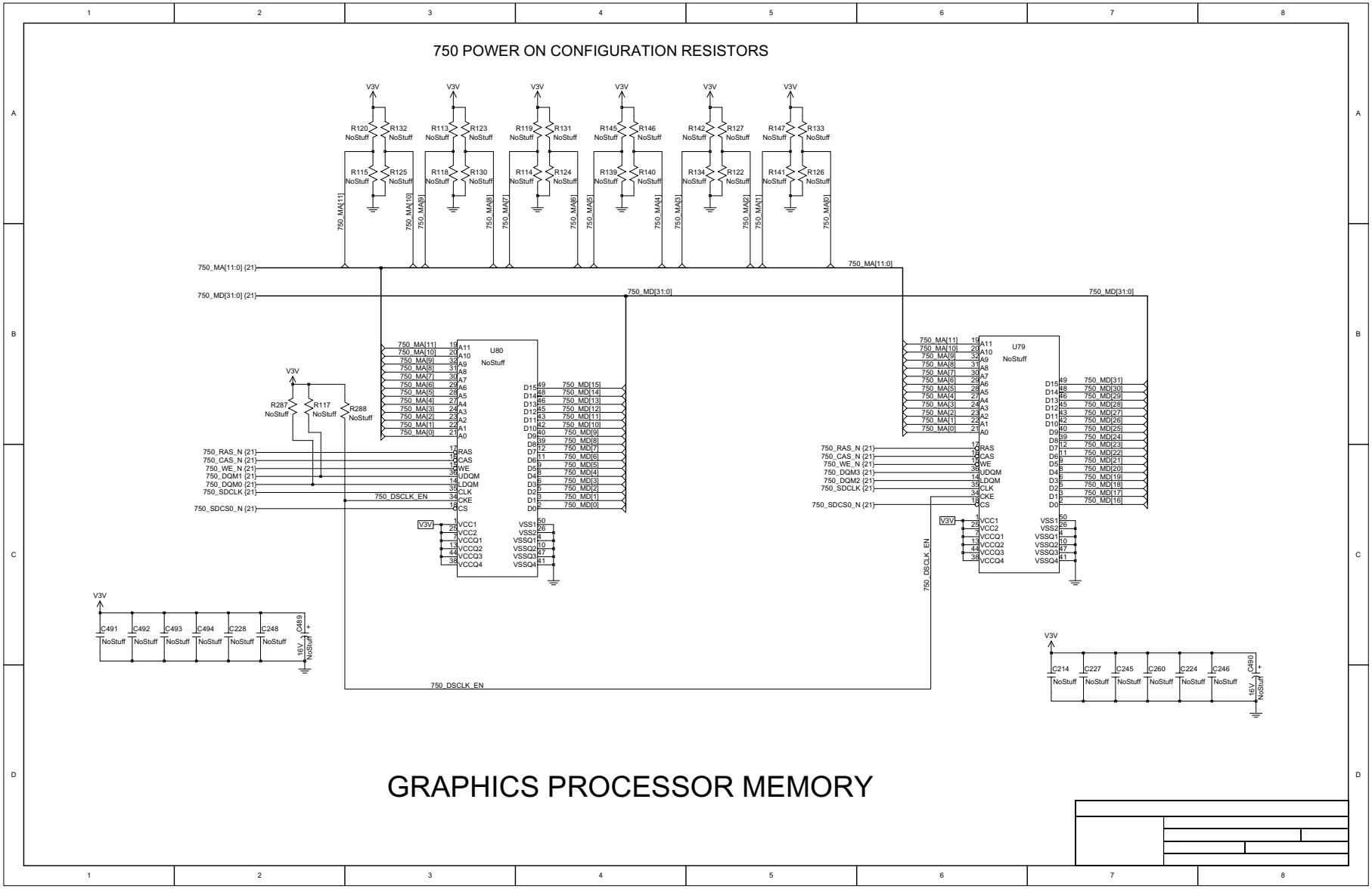
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 17 OF 24)



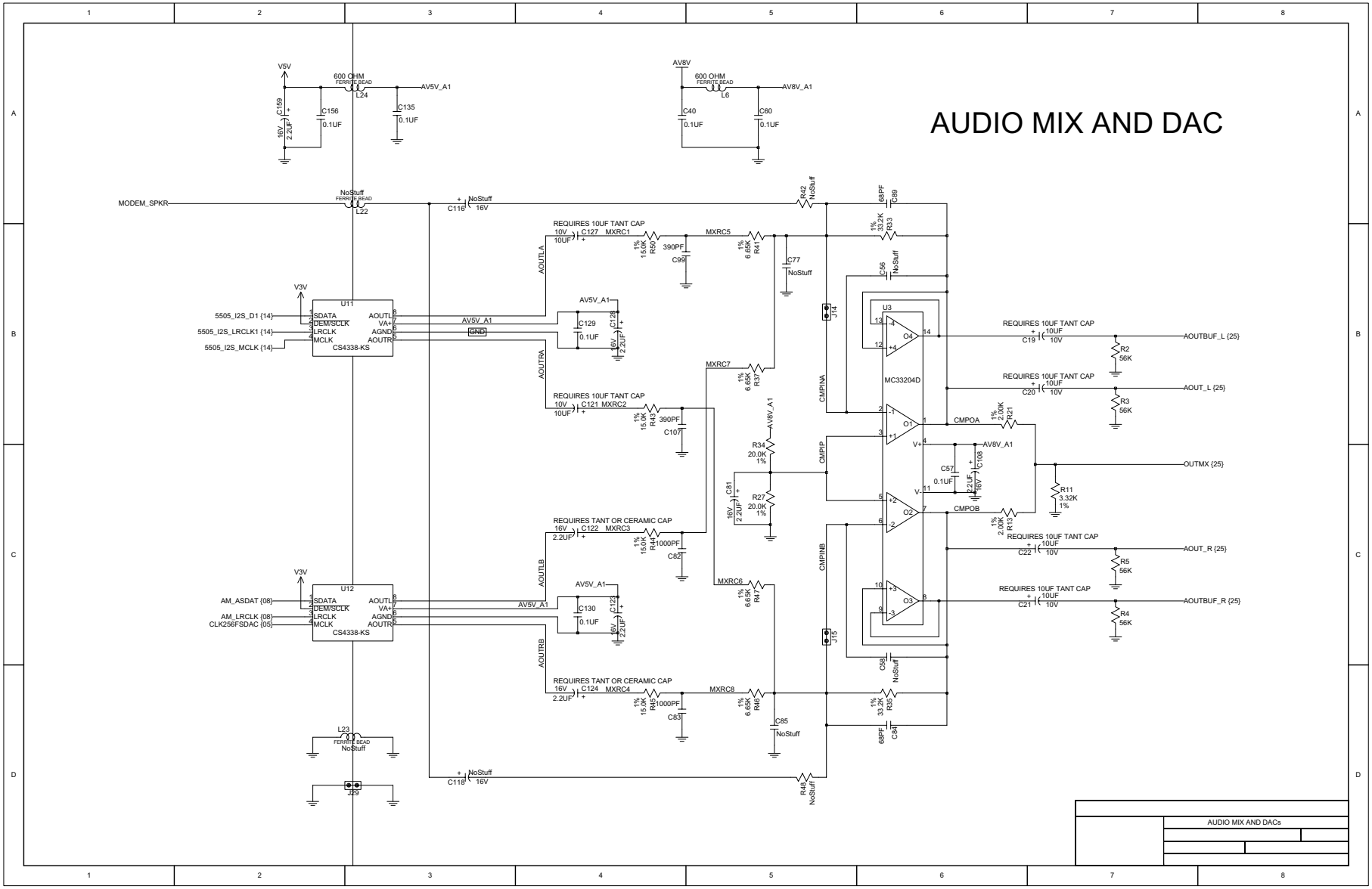
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 18 OF 24)



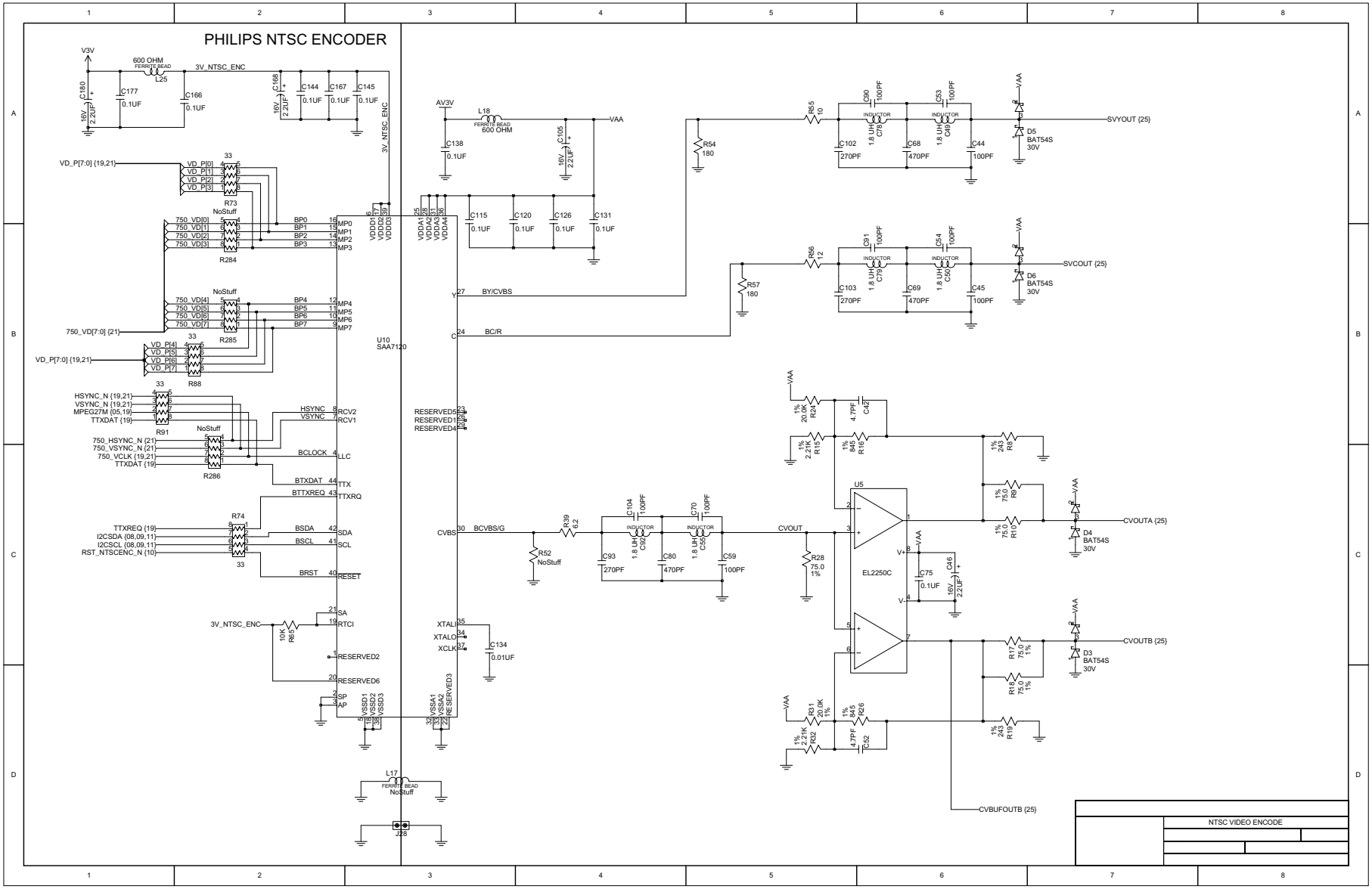
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 19 OF 24)



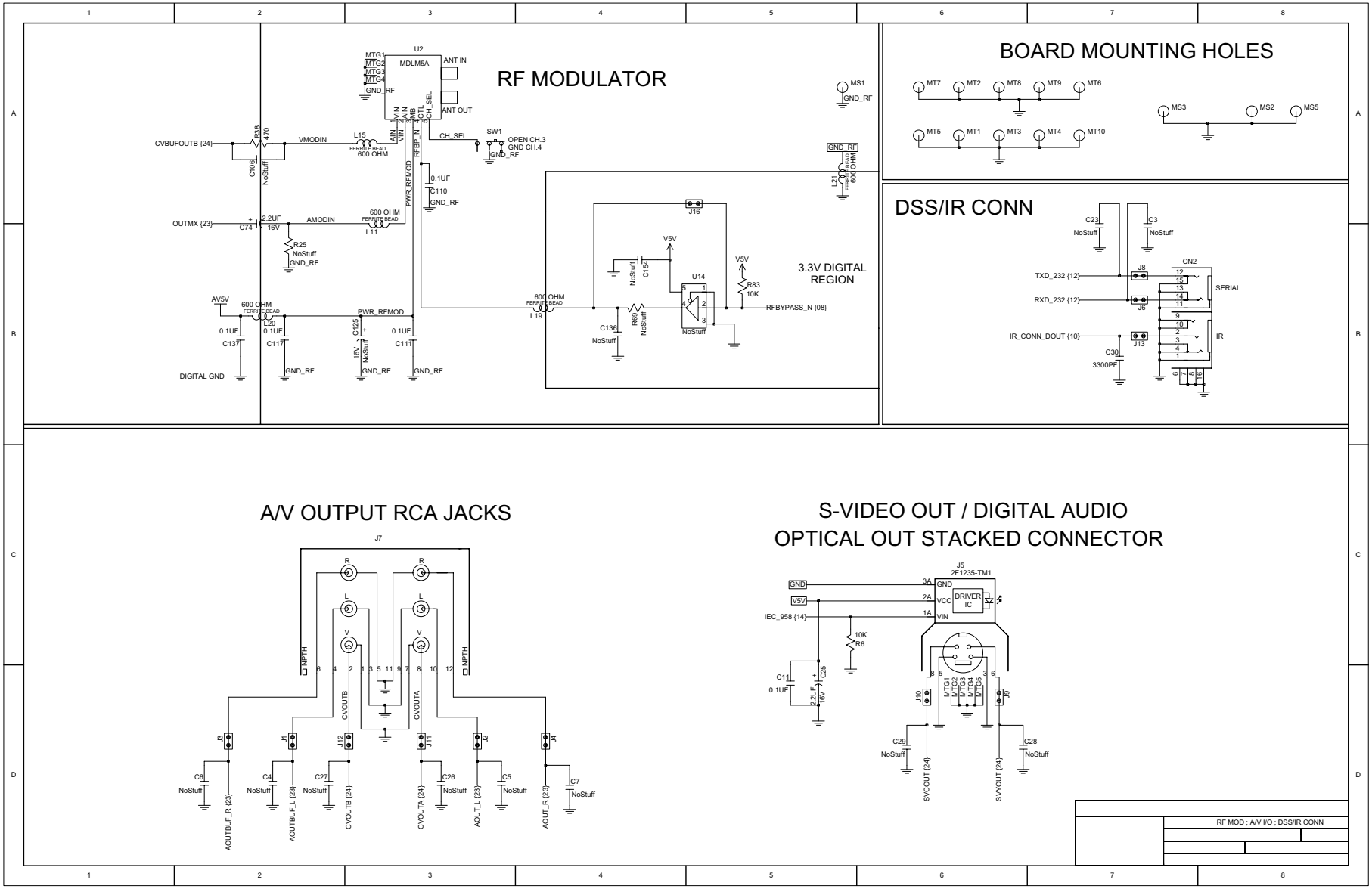
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 20 OF 24)



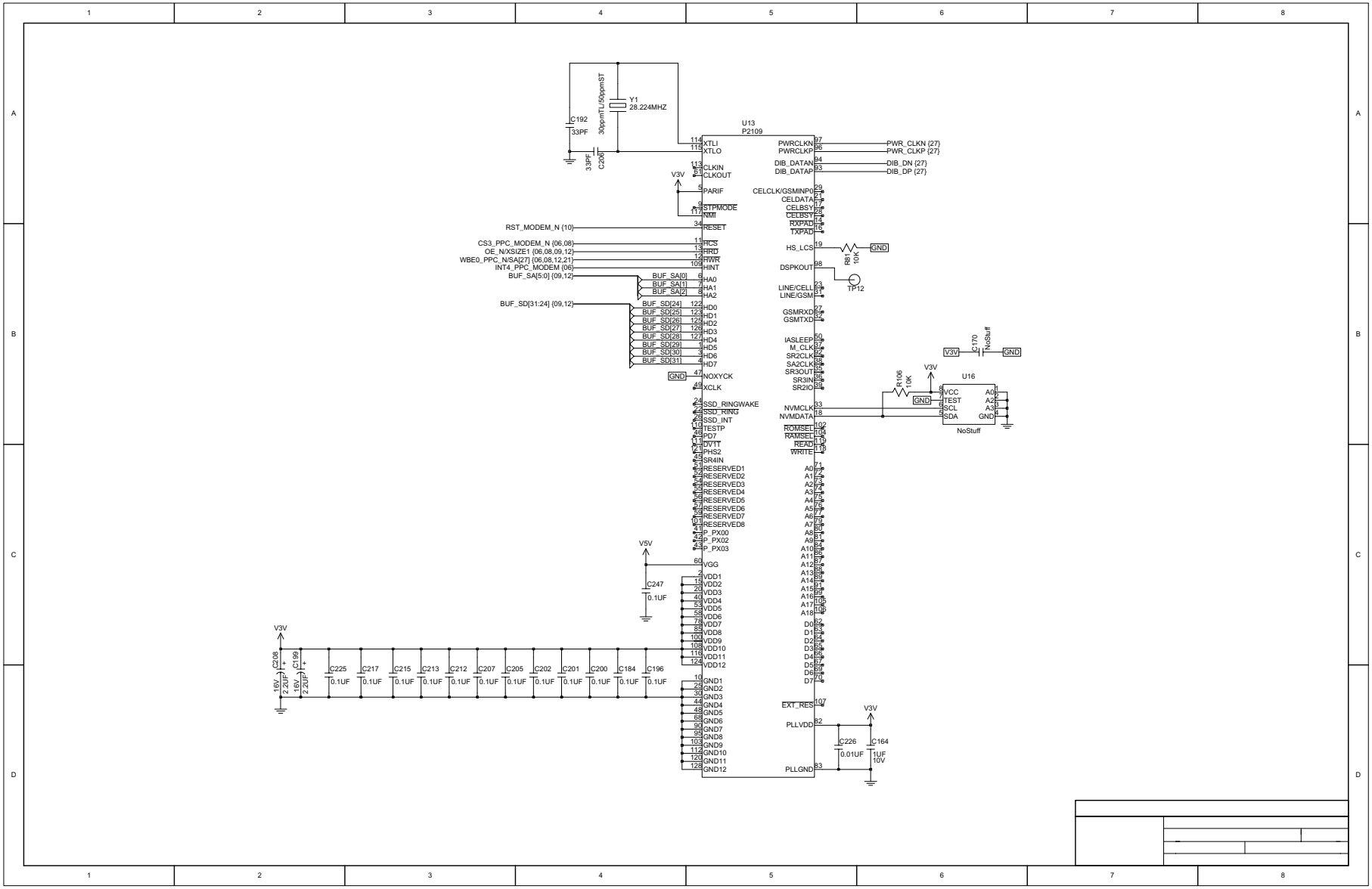
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 21 OF 24)



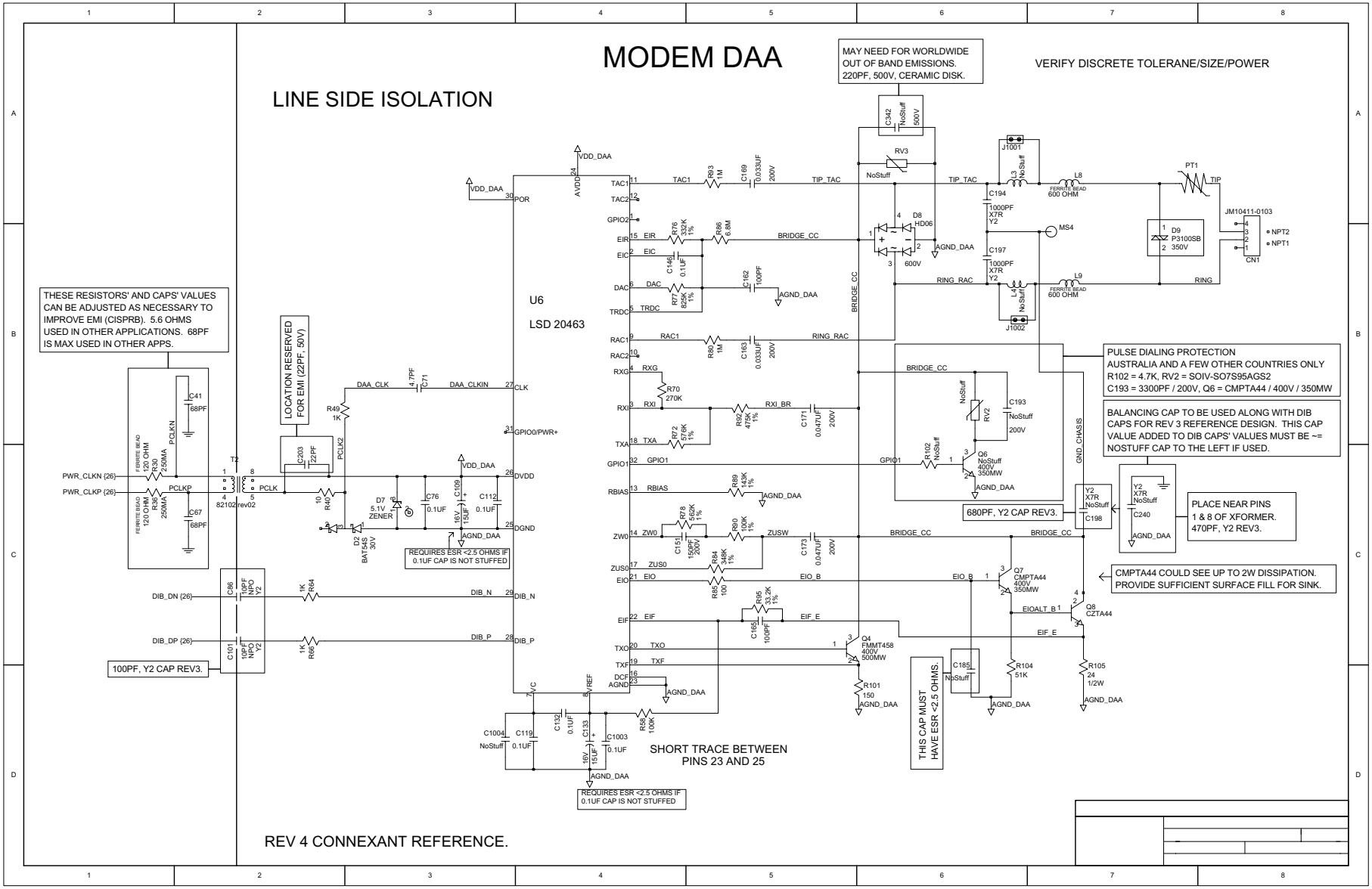
MAIN BOARD SCHEMATIC DIAGRAM (PAGE 22 OF 24)



MAIN BOARD SCHEMATIC DIAGRAM (PAGE 23 OF 24)



MAIN BOARD SCHEMATIC DIAGRAM (PAGE 24 OF 24)


MODEM DAA
LINE SIDE ISOLATION
MAY NEED FOR WORLDWIDE OUT OF BAND EMISSIONS. 220PF, 500V, CERAMIC DISK.
VERIFY DISCRETE TOLERANE/SIZE/POWER
THESE RESISTORS' AND CAPS' VALUES CAN BE ADJUSTED AS NECESSARY TO IMPROVE EMI (CISPRB). 5.6 OHMS USED IN OTHER APPLICATIONS. 68PF IS MAX USED IN OTHER APPS.
LOCATION RESERVED FOR EMI (22PF, 50V)
U6
LSD 20463
PULSE DIALING PROTECTION
AUSTRALIA AND A FEW OTHER COUNTRIES ONLY
R102 = 4.7K, RV2 = SOIV-SO7S95AGS2
C193 = 3300PF / 200V, Q6 = CMPTA44 / 400V / 350MW
BALANCING CAP TO BE USED ALONG WITH DIB CAPS FOR REV 3 REFERENCE DESIGN. THIS CAP VALUE ADDED TO DIB CAPS' VALUES MUST BE ~= NOSTUFF CAP TO THE LEFT IF USED.
680PF, Y2 CAP REV3.
PLACE NEAR PINS 1 & 8 OF XFORMER. 470PF, Y2 REV3.
CMPTA44 COULD SEE UP TO 2W DISSIPATION. PROVIDE SUFFICIENT SURFACE FILL FOR SINK.
100PF, Y2 CAP REV3.
REQUIRES ESR <2.5 OHMS IF 0.1UF CAP IS NOT STUFFED
SHORT TRACE BETWEEN PINS 23 AND 25
THIS CAP MUST HAVE ESR <2.5 OHMS
REV 4 CONNEXANT REFERENCE.

SECTION 3 : EXPLODED VIEWS

Components not identified by a part number or description are not stocked because they are seldom required for routine service.

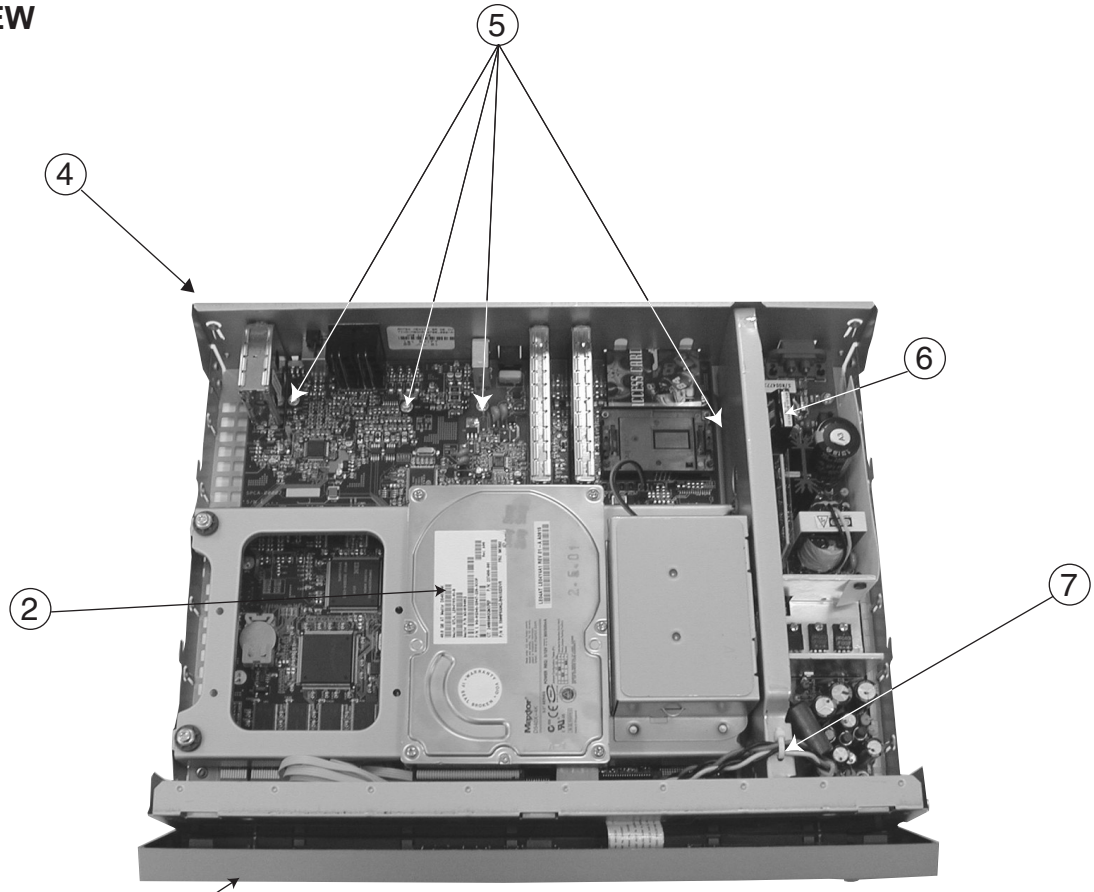
The component parts of an assembly are indicated by the reference numbers in the far right column of the parts list and within the dotted lines of the diagram.

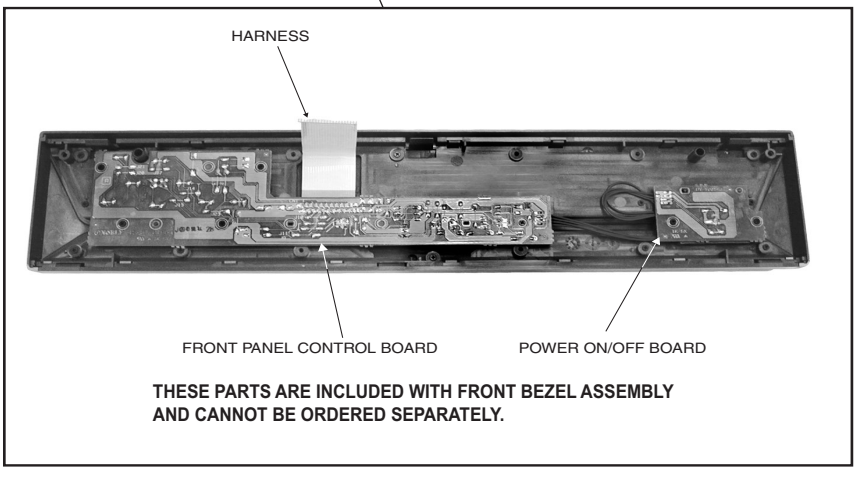
*** Items marked with an asterisk are not stocked since they are seldom required for routine service. Expect some delay when ordering these components.**

NOTE: The components identified by shading and ⚠ mark are critical for safety. Replace only with part number specified.

NOTE: Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

3-1. FRONT VIEW





THESE PARTS ARE INCLUDED WITH FRONT BEZEL ASSEMBLY AND CANNOT BE ORDERED SEPARATELY.

REF. NO.		PART NO.	DESCRIPTION
1		3-065-085-01	FRONT BEZEL ASSEMBLY (includes front panel control board, power on/off board, harness and buttons)
2		1-251-872-52	HARD DRIVE DEVICE - 40GB
4	*	X-3951-116-1	CHASSIS ASSY, BOTTOM
5		3-060-070-01	SCREW, 0.5 x 6, PH, TORX(4) M3
⚠ 6		1-576-431-11	FUSE
7		3-701-748-00	CLAMP

PACKAGING ITEMS NOT SHOWN IN DIAGRAM:

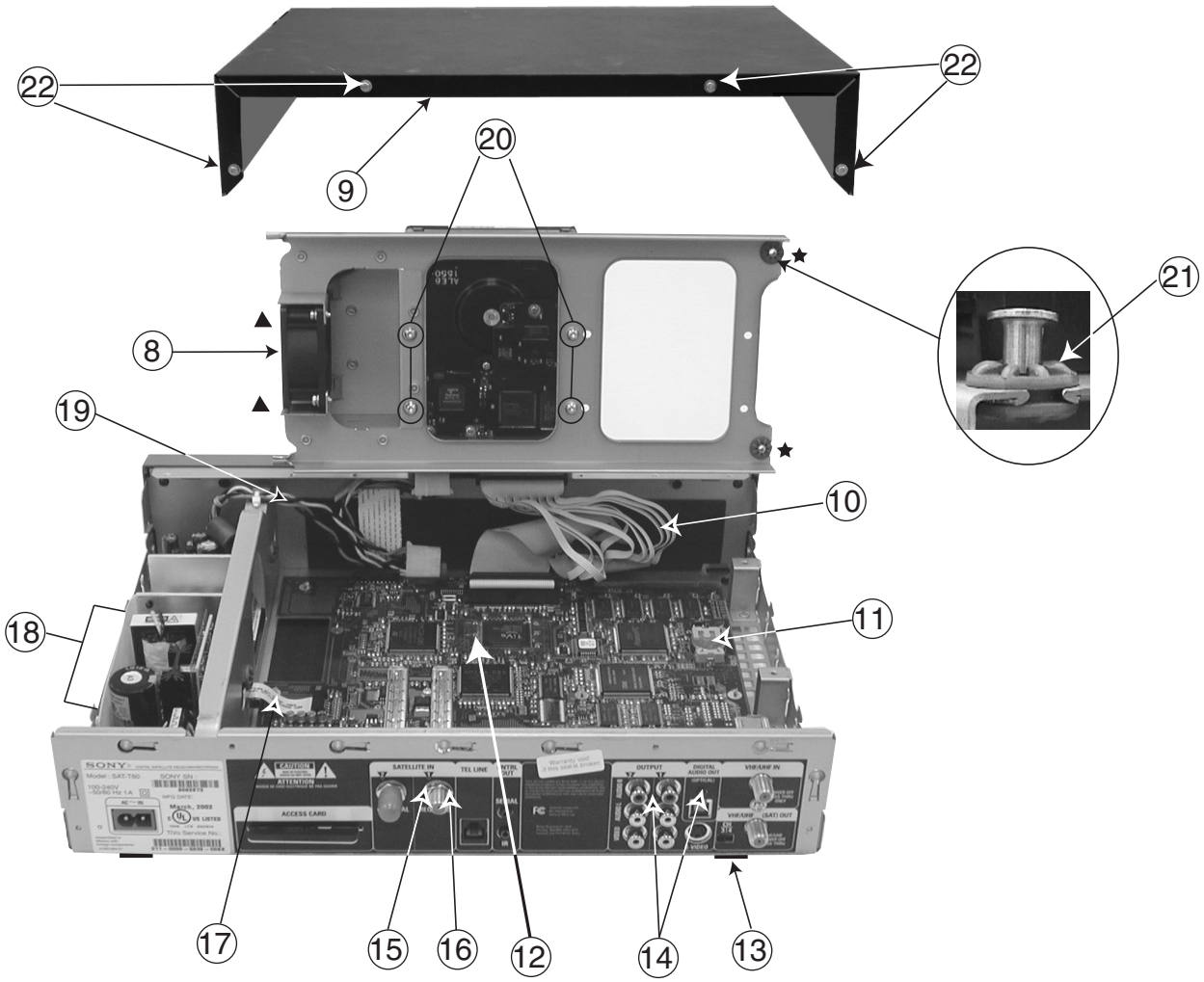
	*	3-065-079-03	INDIVIDUAL CARTON
	*	3-065-080-01	CUSHION (PACKAGING)
		1-476-407-11	REMOTE COMMANDER (RM-Y809)
		3-064-915-01	BATTERY COVER (for RM-Y809)
		3-065-114-21	TIVO VIEWER'S GUIDE
		A-6705-080-A	CABLE AND CONNECTOR ASSEMBLY
⚠		1-792-571-11	CORD SET, AC POWER

NOTE: The components identified by shading and ⚠ mark are critical for safety. Replace only with part number specified.

NOTE: Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

3-2. REAR VIEW

★ 3-060-069-01 SCREW #6-32 X .62 PH TORX
▲ 3-065-784-01 SCREW 6-32 X 1.25



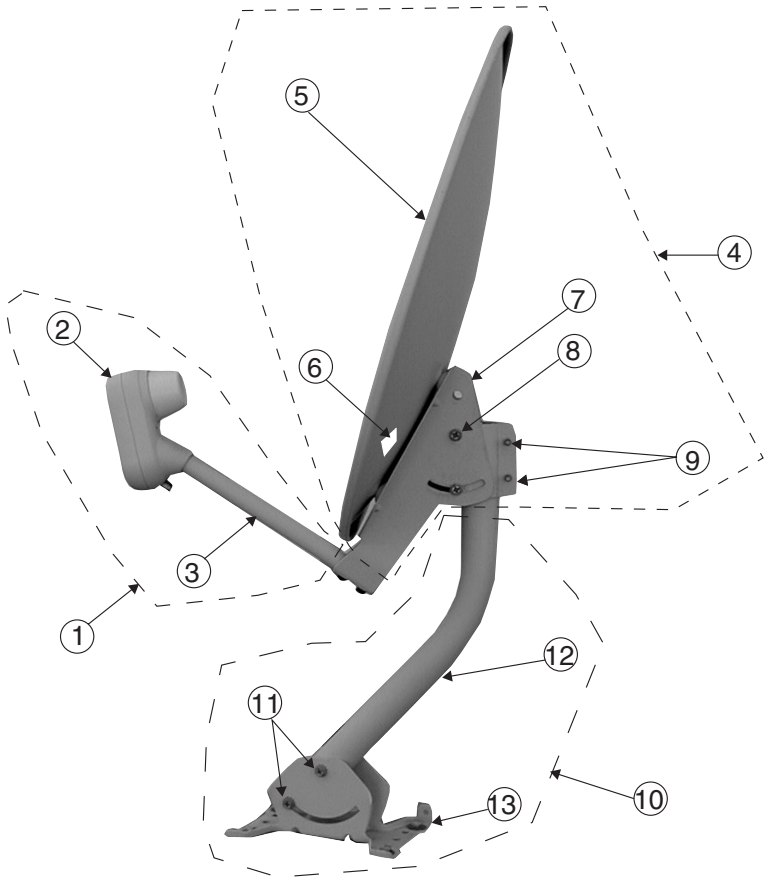
REF. NO.		PART NO.	DESCRIPTION
8		1-251-932-11	FAN ASSY
9	*	3-065-087-01	TOP COVER
10		1-757-370-11	HDD RIBBON IDE CABLE
11		1-528-174-11	LITHIUM BATTERY(CR2032 TYPE)
12		A-6705-084-A	MAIN BOARD, COMPLETE
13	*	3-065-083-01	FOOT
14		3-060-071-01	SCREW, #3-24 x 0.5 PLASTITE
15		3-065-688-01	INT TOOTH WASHER (#3/8)
16		3-065-687-01	HEX NUT (#3/8-32)
17		1-960-964-11	10-PIN HARNESS
⚠ 18		1-468-559-11	POWER SUPPLY
19		1-960-965-11	DUAL 4-PIN HARNESS
20		3-065-959-01	SCREW, 6-32 X .25
21		3-060-068-01	FERRULE VIBRATION ISOLATOR
22		3-060-070-01	SCREW, #M3 X 0.5 X 6, PH, TORX

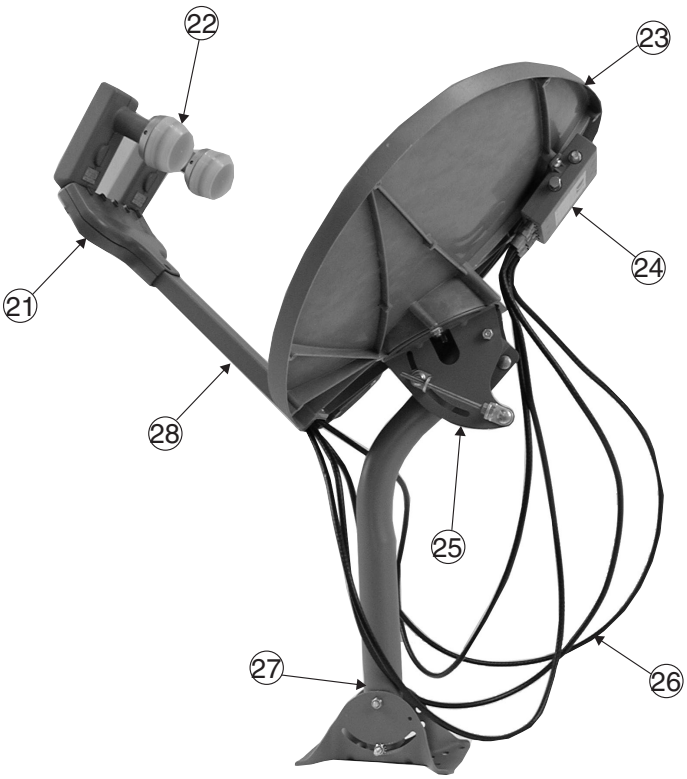
3-3. SAN-18D4

REF.NO.		PART NO.	DESCRIPTION	REMARK
1	*	X-4035-040-2	ARM ASSY, LNB11-13	(2,3)
2		8-598-326-02	CONVERTER, BS SAC-DA201	
3	*	4-061-590-01	ARM, LNB SUPPORT	
4		X-4035-039-2	REFLECTOR MOUNT ASSY	(5-9)
5		4-061-583-01	REFLECTOR	
6	*	4-061-576-11	MODEL NUMBER LABEL	
7		4-061-584-01	MOUNTING BASE REFLECTOR	
8		4-061-581-01	BOLT, 1/4- 20 UNC x 1/2 FORMING	
9		4-061-587-01	BOLT, 1/4-20 UNC X 7/8	
10		X-4035-030-1	MOUNT ASSY, UNIVERSAL	(11-13)
11		4-061-591-01	BOLT, 1/4-20 UNC x 1/2	
12	*	4-061-588-01	UNIVERSAL MOUNT MAST	
13	*	4-061-589-01	UNIVERSAL MOUNT FOOT	

PACKAGING / ACCESSORY ITEMS NOT SHOWN:

4-049-203-01	WATERPROOF COVER	
4-049-478-01	CLIP (2)	
4-086-057-21	INSTRUCTION MANUAL	
4-061-577-11	CARTON	





3-4. SAN-24MD1

REF.NO.		PART NO.	DESCRIPTION	REMARK
21	*	9-885-008-31	LNB HOUSING	
22	*	9-885-008-26	LNB DUAL OUTPUT (2)	
23		9-885-008-21	REFLECTOR	
24		9-885-008-27	OUTDOOR MULTI-SWITCH 4X4	
25	*	9-885-008-23	TILT AZ-EI ASSEMBLY	
26		9-885-008-28	CABLE SET	
27		9-885-008-24	UNIVERSAL MOUNT ASSY	
28	*	9-885-008-25	LNB SUPPORT ARM	

ACCESSORY ITEMS NOT SHOWN:

*	9-885-008-29	HARDWARE BAG
	9-885-008-30	HARDWARE BAG FINE TUNE ADJ.

SECTION 4: ELECTRICAL PARTS LIST

NOTE: The components identified by shading and ⚠ mark are critical for safety. Replace only with part number specified.

NOTE: Les composants identifies per un trame et une marque ⚠ sont critiques pour la securite. Ne les remplacer que par une piece portant le numero specifie.

*** Items marked with an asterisk are not stocked since they are seldom required for routine service. Expect some delay when ordering these components.**

RESISTORS
- **All resistors are in ohms**
- **F : nonflammable**
- **All variable and adjustable resistors have characteristic curve B, unless otherwise noted.**

When ordering parts by reference number, please include the board name.

REF. NO.	PART NO.	DESCRIPTION	VALUES
*	**A-6705-084-A**	**MAIN BOARD, COMPLETE**	
	COIL		
L1	9-885-027-62	FERRITE BEAD 600 OHM @100 MHZ	
L2	9-885-027-62	FERRITE BEAD 600 OHM @100 MHZ	
L5-L16	9-885-027-62	FERRITE BEAD 600 OHM @100 MHZ	
L18-L21	9-885-027-62	FERRITE BEAD 600 OHM @100 MHZ	
L24-L30	9-885-027-62	FERRITE BEAD 600 OHM @100 MHZ	
L36	9-885-027-62	FERRITE BEAD 600 OHM @100 MHZ	
L37	9-885-027-62	FERRITE BEAD 600 OHM @100 MHZ	
	CONNECTOR		
CN1	9-885-028-54	CONNECTOR, MINI LOW PROFILE PCB MOD. JACK	
CN2	9-885-024-92	CONNECTOR, PHONE JACK	
CN3	9-885-024-89	CONNECTOR, SMART CARD READER	
CN5	9-885-024-84	CONNECTOR, FPC 10 PIN	
CN10	9-885-024-90	CONNECTOR, FPC 20 PIN	
	CRYSTAL		
Y1	9-885-018-83	CRYSTAL 28.224 MHZ	
Y2	9-885-018-84	CRYSTAL 32.768 KHZ	
Y3	9-885-018-85	CRYSTAL 14.381 MHZ	
Y4	9-885-018-86	CRYSTAL 13.5 MHZ	
Y5	9-885-018-87	CRYSTAL 12 MHZ	
	DIODE		
D8	9-885-027-66	DIODE 0.8A SURFACE MOUNT	
D9	9-885-024-95	DIODE P3100SB	
	IC		
U1	9-885-018-81	IC LOWER POWER TRANSCEIVER	
U2	9-885-024-91	RF MODULATOR	
U3	9-885-027-63	IC LOW VOLTAGE OP AMP QUAD	
U4	9-885-027-68	IC VOLTAGE REGULATOR LOW NOISE	
U5	9-885-027-64	IC SINGLE SUPPLY DUAL OP AMP	
U6	9-885-018-89	IC MODEM, LINE SIDE DEVICE	
U10	9-885-027-65	DIGITAL VIDEO ENCODER	
U11	9-885-018-93	IC 96 KHZ STEREO DAC	
U12	9-885-018-93	IC 96 KHZ STEREO DAC	
U13	9-885-018-92	IC MODEM, SINGLE CHIP	
U15	9-885-027-68	IC VOLTAGE REGULATOR LOW NOISE	
U33	9-885-027-61	LOW SKEW OUTPUT BUFFER	
U34	9-885-024-85	16-M-BIT SYNCHRONOUS RAM, 3.3V	
U35	9-885-024-85	16-M-BIT SYNCHRONOUS RAM, 3.3V	
U37	9-885-018-91	IC LNB VOLTAGE REGULATOR	
U38	9-885-018-91	IC LNB VOLTAGE REGULATOR	
U39	9-885-024-85	16-M-BIT SYNCHRONOUS RAM, 3.3V	
U40	9-885-024-87	DVD BACKEND DCDR W/ INTEGRATED PROCESSOR	
U41	9-885-018-90	IC MPEG2 VIDEO/AUDIO DECODER	
U43	9-885-024-85	16-M-BIT SYNCHRONOUS RAM, 3.3V	
U46	9-885-018-76	IC UART	
U47	9-885-024-88	2-WIRE SERIAL TEMPERATURE SENSOR	
U49	9-885-018-79	IC PROGRAMMED FLASH	
U50	9-885-018-80	IC POWER PC 32-B RISC CONTROLLER	
U51	9-885-024-87	DVD BACKEND DCDR W/ INTEGRATED PROCESSOR	
U61-U64	9-885-018-82	IC 4M X 16 BIT DYNAMIC RAM, EDO	
U67	9-885-018-78	IC 8-BIT MICRO CONTROLLER	
U74	9-885-027-61	LOW SKEW OUTPUT BUFFER	
U77	9-885-018-77	IC SECURE CRYPTO CONROLLER	
	JACK		
J5	9-885-028-88	MINI-DIN 4 PIN W/GROUND	
	RESISTOR		
R101	9-885-024-94	RESISTOR, 150 OHM, 5%, 1/8W, 0805, 150V	
	SWITCH		
SW1	9-885-018-94	SWITCH, RIGHT ANGLE SLIDE	

REF. NO.	PART NO.	DESCRIPTION	VALUES
		TRANSISTOR	
Q1	9-885-024-96	NPN TRANSISTOR 225MW	
Q2	9-885-024-96	NPN TRANSISTOR 225MW	
Q3	9-885-024-96	NPN TRANSISTOR 225MW	
Q4	9-885-024-83	NPN SILICON PLANAR, HV TRANSISTOR	
Q7	9-885-024-93	NPN SILICON EXTREMELY HV TRANSISTOR	
Q8	9-885-027-67	NPN SILICON EXTREMELY HV TRANSISTOR	
Q13	9-885-024-96	NPN TRANSISTOR 225MW	
Q15	9-885-024-96	NPN TRANSISTOR 225MW	
		TUNER	
U8	9-885-018-88	TUNER, DSS	
U9	9-885-018-88	TUNER, DSS	

REF. NO.	PART NO.	DESCRIPTION	VALUES

9-965-899-02

Sony Corporation
Sony Technology Center
Technical Services
Service Promotion Department

English
2002IJ74WEB-1
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PRINTING THE SERVICE MANUAL

The PDF of this service manual is not designed to be printed from cover to cover. The pages vary in size, and must therefore be printed in sections based on page dimensions.

NON-SCHEMATIC PAGES

Data that does NOT INCLUDE schematic diagrams are formatted to 8.5 x 11 inches and can be printed on standard letter-size and/or A4-sized paper.

SCHEMATIC DIAGRAMS

The schematic diagram pages are provided in two ways, full size and tiled. The full-sized schematic diagrams are formatted on paper sizes between 8.5" x 11" and 18" x 30" depending upon each individual diagram size. Those diagrams that are LARGER than 11" x 17" in full-size mode have been tiled for your convience and can be printed on standard 11" x 17" (tabloid-size) paper, and reassembled.

TO PRINT FULL SIZE SCHEMATIC DIAGRAMS

If you have access to a large paper plotter or printer capable of outputting the full-sized diagrams, output as follows:

1) Note the page size(s) of the schematics you want to output as indicated in the middle window at the bottom of the viewing screen.

2) Go to the File menu and select Print Set-up. Choose the printer name and driver for your large format printer. Confirm that the printer settings are set to output the indicated page size or larger.

3) Close the Print Set Up screen and return to the File menu. Select "Print..." Input the page number of the schematic(s) you want to print in the print range window. Choose OK.

TO PRINT TILED VERSION OF SCHEMATICS

Schematic pages that are larger than 11" x 17" full-size are provided in a 11" x 17" printable tiled format near the end of the document. These can be printed to tabloid-sized paper and assembled to full-size for easy viewing.

If you have access to a printer capable of outputting the tabloid size (11" x 17") paper, then output the tiled version of the diagram as follows:

1) Note the page number(s) of the schematics you want to output as indicated in the middle window at the bottom of the viewing screen.

2) Go to the File menu and select Print Set-up. Choose the printer name and driver for your printer. Confirm that the plotter settings are set to output 11" x 17", or tabloid size paper in landscape (▭) mode.

3) Close the Print Set Up screen and return to the File menu. Select "Print..." Input the page number of the schematic(s) you want to print in the print range window. Choose OK.

TO PRINT SPECIFIC SECTIONS OF A SCHEMATIC

To print just a particular section of a PDF, rather than a full page, access the Graphics Select tool in the Acrobat Reader tool bar.

1) To view the Graphics Select Tool, press and HOLD the mouse button over the Text Select Tool which looks like:
This tool will expand to reveal to additional tools.
Choose the Graphics Select tool by placing the cursor over the button on of the far right that looks like:

2) After selecting the Graphics Select Tool, place your cursor in the document window and the cursor will change to a plus (+) symbol. Click and drag the cursor over the area you want to print. When you release the mouse button, a marquee (or dotted lined box) will be displayed outlining the area you selected.

3) With the marquee in place, go to the file menu and select the "Print..." option. When the print window appears, choose the option under the section called "Print Range" which says "Selected Graphic".

Select OK and the output will print only the area that you outlined with the marquee.

(continued >)

ON-SCREEN SEARCH OPTION

All of the text within the service manual PDF is content searchable. This means that you can enter any text, word, phrase or reference number that appears in the manual, and the PDF software will search, find and move the cursor to the location where you requested text first appears. This feature can be particularly useful in locating components on a specific schematic or printed wire circuit board (PWB) diagrams.

Follow these steps to effectively locate a component on a schematic diagram:

1) Locate the schematic you want to search by clicking on the corresponding bookmark on the left side of the screen. The view on the right of the screen will then jump to the desired schematic page.

2) Magnify the diagram to at least 400% before conducting a component search. This will enable you to easily view the reference number when it is highlighted on screen. To do this, click on the magnifying glass button on the tool bar at the top of the screen. Move the cursor over the diagram and RIGHT click you mouse. Select the 400% magnification option on the pop-up menu. Click on the button with the icon of the open hand to deactivate the magnification tool

3) Search the diagram (or the entire manual) by clicking on the binocular button tool at the top of the screen. The “Find” window will appear and allow you to type in your desired text. Type in a reference designator, such as R502, and click on the “Find” button. If the component is not on the diagram, but is listed anywhere else in the manual, the cursor will jump to the first location the text is found in the file. To find another instance of that same text, click on the binocular button again and select “Find Again.”

SONY

3-065-115-21 (1)

DIRECTV™ Receiver with TiVo®

Digital Satellite Receiver/Recorder

SAT-T60

Installation Guide

Please use this manual first

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DIRECTV

WARNING

To reduce the risk of fire or shock hazard, do not expose the unit to rain or moisture.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of significant magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Note to the Satellite Dish Antenna Installer

This reminder is provided to call the Satellite Dish Antenna installer's attention to Article 810 and in particular Article 810-15 of the NEC (National Electrical Code), which covers proper installation and grounding of television receiving equipment, as well as to Article 820-40 of the NEC, which specifies that the Satellite Dish Antenna cable ground shall be connected to the grounding system of the building as close to the point of cable entry as practical.

Attention

Telephone Line Interruption

A continuous, land-based phone line connection is required for DIRECTV® Pay Per View functionality and sports subscriptions. Periodically, information on your TiVo Service is sent, free of charge, via your telephone line. If you use your telephone during the time the information is being forwarded, you will hear static noise for approximately 30 seconds. It is not necessary to install a separate phone line. Simply plug the receiver into any existing phone jack; it can detect when your phone line is in use and make calls when the phone is available. If the phone jack is used for another phone, use the provided splitter.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The Satellite Receiver is intended for use only within the United States.

Local Programming

With this Digital Satellite Receiver and the proper Satellite Dish Antenna, you may be able to receive local channels from DIRECTV in certain markets. Additional equipment may be required in some areas. Check with your retailer or visit *www.directv.com* for information on availability of local channels from DIRECTV in your area

Owner's Record

The model and serial numbers are located on the back of the Satellite Receiver. Record these numbers in the space provided below. Refer to these numbers whenever you need to call your sales or service representative regarding this product.

Model Number: _____

Serial Number: _____

Customer Support

For Hardware and Installation

To arrange for the installation of your Satellite Receiver, call the dealer from whom you purchased your system.
For general information, or to resolve problems related to the operation of your Satellite Receiver, please contact your Sony dealer. If your dealer or installer is unable to answer your questions, call the Sony Direct Response Center at 1-877-585-SONY (7669).

DIRECTV® Programming

For subscription information and activation, or to resolve problems related to programming, call:
DIRECTV at 1-800-DIRECTV (347-3288)

TiVo Service

To use the digital recording features of your Satellite Receiver, you will need to activate the TiVo Service (see the back cover of this Installation Guide or the Viewer's Guide for details). You can activate the TiVo Service through DIRECTV when you activate your programming.

Macrovision Information

This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights. Use of this copyright protection technology is granted by Macrovision for home and other limited pay per view uses only. Reverse engineering or disassembly is prohibited.

Note on Recording Programming

Programming may be recorded for home viewing only. All other recording is expressly prohibited. Some programming may not be recorded. An additional recording fee may be applied. Call your program providers for details.

Software Downloads

Your Satellite Receiver is able to receive upgrades or modifications to some of its features and functions. These modifications will occur automatically, usually at times when the receiver would likely be turned off.
A continuous, land-based phone line connection is required in order for your receiver to receive downloads. If your receiver is on when an upgrade or modification is sent, you may experience a disruption in reception for a short period of time. Your reception should return to normal after the modification is complete. Your receiver must be plugged in to receive any upgrades. Do not unplug your receiver while an upgrade is in progress.

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About This Installation Guide

This Installation Guide is part of the complete documentation for your Satellite Receiver. This Installation Guide describes how to connect the Satellite Receiver. The Start Here poster provides an easy to read summary of this Installation Guide and includes information on how to activate DIRECTV® programming and the TiVo Service. The Viewer's Guide provides detailed information about how to activate and use your DIRECTV® Service / TiVo Service, and how to use the different features of this product.

A **Note** provides information that may be necessary to complete the task.
A ***Tip*** provides information that may make the task easier to perform.

Table of Contents

Getting Started

6 Overview
7 Carton Contents
8 Parts, Controls, and Functions
- **8** Front Panel
- **10** Back Panel
- **12** Remote Control
- **15** Installing Batteries

Connecting Your Equipment

17 Cables You Can Use
18 Connection Overview
19 Step 1: Connecting the Satellite Dish Antenna and Telephone Line
20 Step 2: Connecting Your TV
21 Step 3: Adding a VCR (Advanced Connection)
22 Step 4: Connecting the IR Controller (Advanced Connection)
23 Step 5: Adding an Audio System (Advanced Connection)
24 Step 6: Connecting the AC Power Cord
25 Step 7: Inserting the Access Card

Additional Information

27 Programming Your Remote Control
- **29** Code Search Method

30 Troubleshooting
36 Specifications
37 FCC Regulations and Information
39 Sony Software License Agreement
41 Limited Warranty

Overview

Congratulations on your purchase of the Sony SAT-T60 Digital Satellite Receiver / Recorder. You will soon be enjoying total control over your television viewing. To enjoy DIRECTV® programming and the TiVo Service, you must complete the following tasks.

1 Connect your Satellite Receiver.

Use this Installation Guide to help you connect the Satellite Receiver to your other audio / video equipment.

2 Install the Satellite Dish Antenna.

Refer to your Satellite Dish Antenna's installation instructions, or have the Satellite Dish Antenna professionally installed.

3 Set up the Satellite Dish Antenna.

Refer to the Viewer's Guide to complete the setup of your Satellite Dish Antenna.

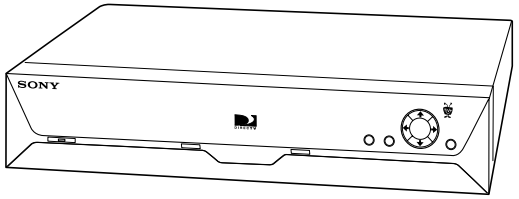
4 Activate your services.

Call DIRECTV at: 1-800-DIRECTV (347-3288) to activate your DIRECTV programming and TiVo Service, then refer to the Viewer's Guide.

Carton Contents

Check your carton to make sure all of the following items are included. If you are missing any items, contact your Sony dealer.

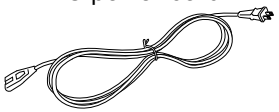
Satellite Receiver/Recorder



Remote Control

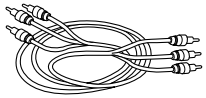
Size AA (R6) batteries (2)

AC power cord



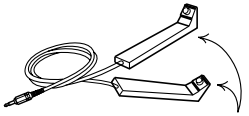
RG-6 Coaxial cable

Audio/Video cable



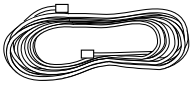
S-Video cable

IR Control cable

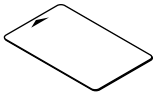


IR Emitters

Phone cord

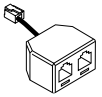


Access Card



(Check the Access Card slot in the back panel.)

Phone splitter

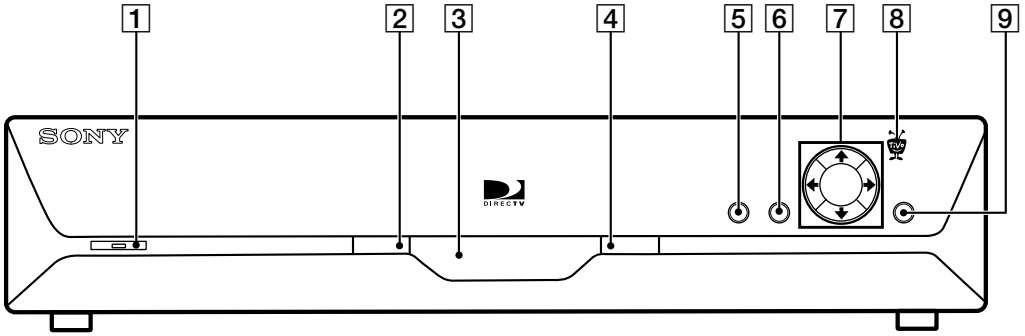


Notes

- Your Satellite Receiver comes with 50 feet of phone cord for you to connect to your nearest phone jack. You don't need a dedicated phone line (your Satellite Receiver only needs to share the phone line for five to ten minutes a day), but you may wish to consider installing a jack nearby.
- Your Satellite Receiver cannot be used with any digital phone system. Doing so will damage your Satellite Receiver and void your warranty.

Parts, Controls, and Functions

Front Panel



1 **POWER button**
Press to turn on / off your Satellite Receiver. The indicator lights when the Satellite Receiver is on.

2 **RECEIVING indicator**
Yellow indicates that the Satellite Receiver is receiving a signal from the Remote Control.

3 **Remote Control Signal Reception Window**
Receives control signals from your Remote Control.

4 RECORDING indicator
Red indicates that the Satellite Receiver is recording a program.
Yellow indicates that the Satellite Receiver is currently using the telephone line.
The indicator may appear orange if the unit is both recording a program and using the telephone line.

5 Guide button
Press to open the Program Guide.

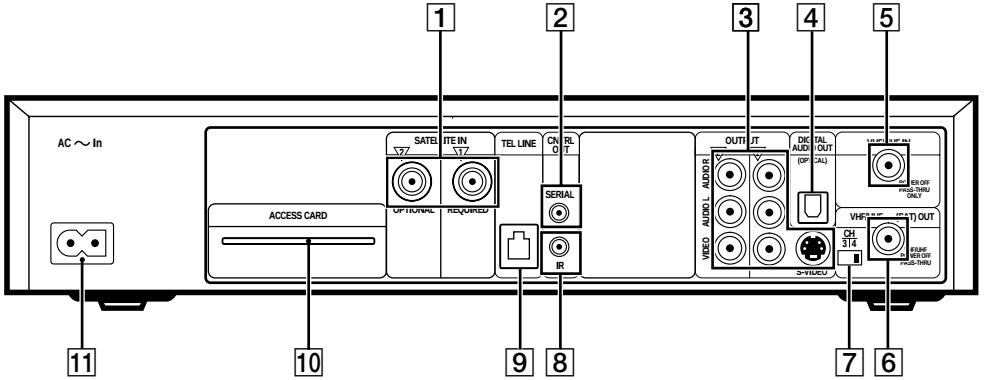
6 MENU button
Press to open the DIRECTV Menu.

7 ↑/↓/←/→/SELECT button
Press the ↑ / ↓ / ← / → buttons to move the highlight within menus and guides. Press SELECT to select the highlighted item.

8 TiVo button
Press to open the TiVo Central Menu.

9 DISPLAY button
Press to open a display that shows information about the current program. When you press this button while viewing the Program Guide, “Display Option” appears.

Back Panel



1 SATELLITE IN jacks
Input satellite signals from your Satellite Dish Antenna using RG-6 coaxial cable (not supplied).
You must connect a Satellite Dish Antenna to the REQUIRED jack to use your Satellite Receiver. If you have a dual LNB dish, connect an RG-6 coaxial cable from the second LNB to the OPTIONAL jack.

2 CNTRL (control) OUT SERIAL jack
Reserved for future products and applications.

3 A/V OUTPUT jacks
Output audio and video signals to your TV and other audio/video equipment using A/V cables and S-Video cable (supplied).

4 DIGITAL AUDIO OUT (OPTICAL) jack
Outputs digital audio signals to the digital optical input of your audio system.

5 VHF/UHF IN jack
Inputs analog non-satellite signals from your TV antenna or cable TV connection. Some antennas require an adapter (not supplied).

6 VHF/UHF (SAT) OUT jack

Outputs audio and video signals to the VHF/UHF input on your TV or VCR using RF coaxial cable (supplied). The signal from the VHF/UHF IN jack passes through when the power is off.

7 CH 3|4 switch

When you use an RF connection (VHF/UHF (SAT) OUT jack) to your TV, this setting determines the TV channel on which you can view programs from the Satellite Receiver.

8 CNTRL (control) OUT IR jack

Outputs control signals to your Sony VCR so the Satellite Receiver can operate your Sony VCR using the IR controller (supplied).

9 TEL LINE jack

Connects the Satellite Receiver to a telephone outlet using a telephone cord (supplied).

10 ACCESS CARD slot

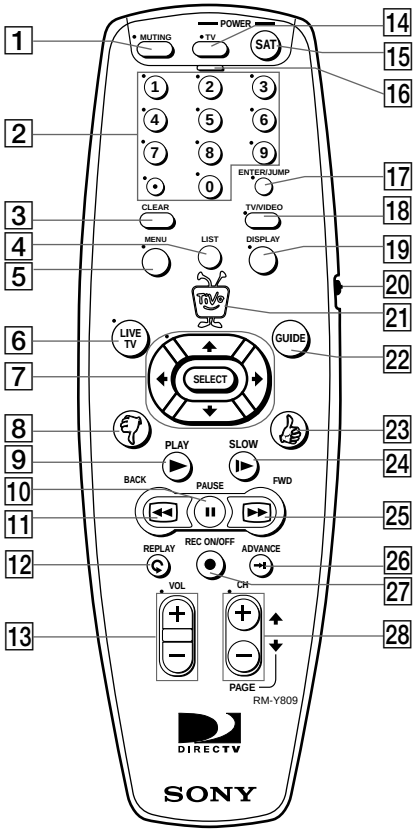
This is the slot where you insert your DIRECTV Access Card (supplied). After you have inserted the Access Card, do not remove the Access Card unless instructed to do so by your service provider.

Caution: Please insert card slowly and insure that it protrudes out about a ¼" from the back panel. Avoid inserting card at an angle as this may cause card to drop inside the receiver.

11 AC~In jack

Inputs AC power from a power outlet using the AC power cord.

Remote Control



1 MUTING button
Mutes the sound of your TV. See “Programming Your Remote Control” on page 27 to set up the Remote Control to operate your TV.

2 Number keys
Enter numbers for changing channels and entering setup information. Use the delimiter ⊙ (subchannel) button to select subchannels (for example, 2.1).

3 CLEAR button
Closes the Channel Banner and Status Bar, and clears the text characters you enter in any text entry box.

4 LIST button
Opens the “Now Playing List” of recorded programs.

5 MENU button
Opens the DIRECTV Menu when the TV / SAT function switch is set to SAT. Opens the TV Menu when the TV / SAT function switch is set to TV.

6 LIVE TV button
Changes to the live programming on the last selected channel.

7 ↑/↓/←/→/SELECT buttons
Press the ↑ / ↓ / ← / → buttons to move the highlight within menus and guides. Press SELECT to select the highlighted item.

8 Thumbs Down button
Use to indicate that you do not like a program. You can apply up to three thumbs down for any program.

9 PLAY button
Plays a program at normal speed.

10 PAUSE button
Pauses playback. Once in pause mode, you can use the BACK and FWD (forward) buttons to reverse or advance frame-by-frame.

11 BACK button
Plays a program in reverse fast search mode. Shows a program in reverse frame-by-frame when in pause mode. Press up to three times to increase the speed of the search or frame-by-frame viewing.

12 (Instant) REPLAY button
Replays the previous eight seconds of the current program.

13 VOL (volume) +/– buttons
Controls the volume of your TV. See “Programming Your Remote Control” on page 27 to set up the Remote Control to operate your TV or audio system.

14 POWER/TV button
Turns your TV or audio system on and off. See “Programming Your Remote Control” on page 27 to set up the Remote Control to operate your TV or audio system.

15 POWER/SAT button
Turns the Satellite Receiver on and off. When the power to the Satellite Receiver is off, the antenna (or cable) signal passes through to your TV (see VHF / UHF (SAT) OUT on page 11).

16 Remote Active indicator
Flashes while the Remote Control is transmitting signals or being programmed.

17 ENTER/JUMP button
Selects the currently entered number as the channel to watch, or jumps back to the previously set channel.

18 TV/VIDEO button
Switches between the various inputs of your TV. See “Programming Your Remote Control” on page 27 to set up the Remote Control to operate your TV.

19 DISPLAY button
Opens a Channel Banner that shows information about the current program. You can select either the grid-type guide or TiVo guide by pressing this button while the Program Guide is open.

continued

20 TV/SAT function switch
Move up to set the Remote Control to operate your TV functions. When you set this switch to TV, the buttons with a "•" mark operate your Sony TV (see "Programming Your Remote Control" on page 27).
Move down to set the Remote Control to operate the Satellite Receiver functions.

21 TiVo button
Opens TiVo Central, which provides access to features and options.

22 GUIDE button
Opens the Program Guide.

23 Thumbs Up button
Use to indicate that you like a program. You can apply up to three thumbs up for any program.

24 SLOW button
Plays a program in slow speed.

25 FWD (forward) button
Plays a program in fast search mode. Shows a program frame-by-frame when in pause mode. Press up to three times to increase the speed of the search or frame-by-frame viewing.

26 ADVANCE button
While watching a live program, pressing this button advances viewing to the current time.
While watching a recorded program, pressing this button advances viewing to the end of the program. Press again to go to the beginning of the recorded program.

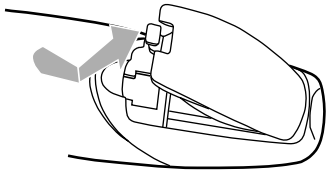
27 REC (record) ON/OFF button
Starts or stops recording of the current program.

28 CH (channel) +/– or PAGE buttons
Changes the Satellite Receiver's channel shown on your TV. Also pages up and down in menus and guides.

Installing Batteries

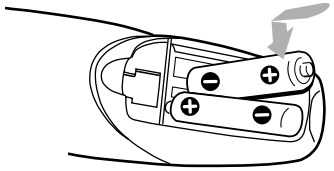
Before you can use the Remote Control, you must insert the supplied batteries. If you want to use this Remote Control to operate other audio / video equipment, such as a TV or stereo, you must program the Remote Control (see page 27).

1 Pull the latch and lift the cover to open the battery compartment.



2 Insert two size AA batteries (supplied).

Be sure to match the + and – marks on the batteries with the + and – marks inside the battery compartment.



3 Close the cover.

Insert the tabs on the cover into the gaps in the rear of the battery compartment. Then, lower the cover onto the Remote Control until you hear the latch click.

Notes

- When the batteries become weak, the Remote Active indicator flashes. If the Remote Control does not work properly, the batteries may be weak.
- When replacing batteries, replace both batteries with new ones. Do not mix different types of batteries together.

Cables You Can Use

Below is a description of the cables you can use to make connections. Not all cables are supplied with your Satellite Receiver (see page 7).

Coaxial (RF) Cable with F-type connectors (not supplied) for VHF/UHF jacks
Use the VHF/UHF IN jack to receive signals from a TV antenna or from a cable TV connection. You can also use the VHF/UHF (SAT) OUT jack to send audio and video signals to your TV or VCR.

RG-6 Coaxial Cable with F-type connectors for SATELLITE IN jacks
Use the SATELLITE IN jacks to receive signals from DIRECTV Satellites through your Satellite Dish Antenna.

Audio/Video Cables with RCA-type plugs for Audio/Video (A/V) jacks
Use the audio/video jacks to send good quality analog video and stereo audio signals.

S-Video Cables with S-Video plugs for S-VIDEO jacks
Use the S-VIDEO jack to send excellent quality analog video signals.

Optical Cable with Optical plug (not supplied) for DIGITAL AUDIO (OPTICAL) jack
Use the DIGITAL AUDIO OUT (OPTICAL) jack to send excellent quality audio signals to a Dolby Digital receiver.

RJ-11 Phone Cord for TEL LINE jack
Use the TEL LINE jack to connect to a telephone outlet. Periodically, information on your DIRECT TICKET®, Pay Per View selections, and TiVo Service is sent, free of charge, via your telephone line.

Connection Overview

Follow the procedures or make the connections in each of the steps to connect your Satellite Receiver to your other audio / video equipment.

Step 1: Connecting the Satellite Dish Antenna and Telephone Line **Page 19**

↓

Step 2: Connecting Your TV **Page 20**

↓

Step 3: Adding a VCR (Advanced Connection) **Page 21**

↓

Step 4: Connecting the IR Controller (Advanced Connection) **Page 22**

↓

Step 5: Adding an Audio System (Advanced Connection) **Page 23**

↓

Step 6: Connecting the AC Power Cord **Page 24**

↓

Step 7: Inserting the Access Card **Page 25**

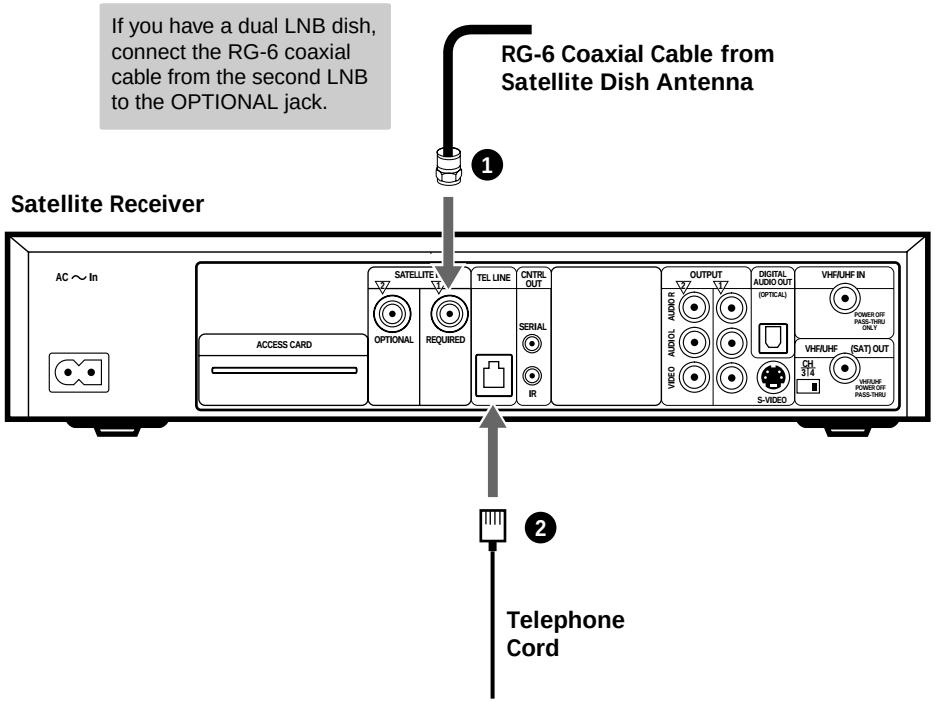
Notes

- Before you begin connecting your Satellite Receiver, unplug all of your audio / video equipment from the power outlet to reduce the possibility of shock hazard.
- This section explains the basic steps for connecting the Satellite Receiver. Your programming source signal(s) and equipment may allow for other connection possibilities. If you have any questions, refer to the operating instructions for that equipment or contact your programming provider(s).

Step 1: Connecting the Satellite Dish Antenna and Telephone Line

You must connect a DIRECTV Satellite Dish Antenna to the SATELLITE IN REQUIRED jack to use your Satellite Receiver.

You must connect the TEL LINE jack to a telephone line wall jack to use the DIRECTV and TiVo Service.



1 Connect the SATELLITE IN REQUIRED jack to your Satellite Dish Antenna using RG-6 coaxial cable (not supplied).

2 Connect the TEL LINE jack to a telephone line wall jack using the supplied telephone cord.

Note

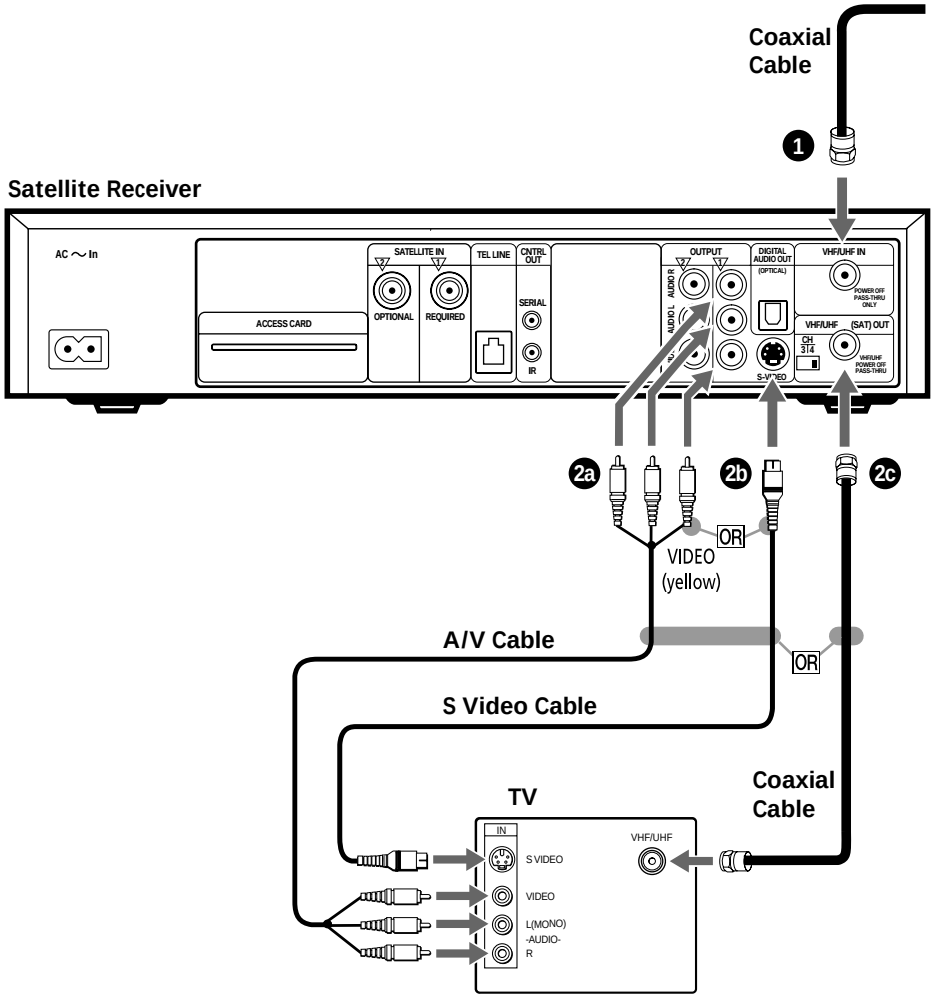
Your Satellite Dish Antenna installation manual provides detailed instructions on how to install RG-6 coaxial cable from your Satellite Dish Antenna.

⚠ **CAUTION**

Only connect your authorized Satellite Dish Antenna to the SATELLITE IN jack as described in the Installation Instructions. Connecting any other equipment to this jack could result in damage to the equipment and / or receiver.

Step 2: Connecting Your TV

Connect your TV to the Satellite Receiver as shown below.



1 If you have a local TV antenna or cable company service

Connect it to the VHF / UHF IN jack on your Satellite Receiver using a coaxial cable or RF adapter (not supplied). You can view local stations using your TV controls when the power to the receiver is off.

Note

You must use the VHF / UHF (SAT) OUT jack to connect to your TV or VCR when a local TV antenna or cable company service is connected to the VHF / UHF IN jack (see 2c below and 1c on page 21). When the power to the Satellite Receiver is off, the antenna signal passes through to your TV.

2a If your TV has A/V input jacks

Connect the AUDIO / VIDEO OUTPUT jacks on your Satellite Receiver to the A / V input jacks on your TV using the supplied A / V cable. If your TV has only one audio input, connect it to the AUDIO L jack on the receiver. (Be sure to match the colors on the jacks with the colored plugs on the A / V cable.)

2b If your TV has an S-Video input

Use the S-Video cable instead of the yellow video connection shown in 2a.

2c If your TV does not have A/V jacks

Connect the VHF / UHF (SAT) OUT jack to the VHF / UHF input jack on your TV using coaxial cable.

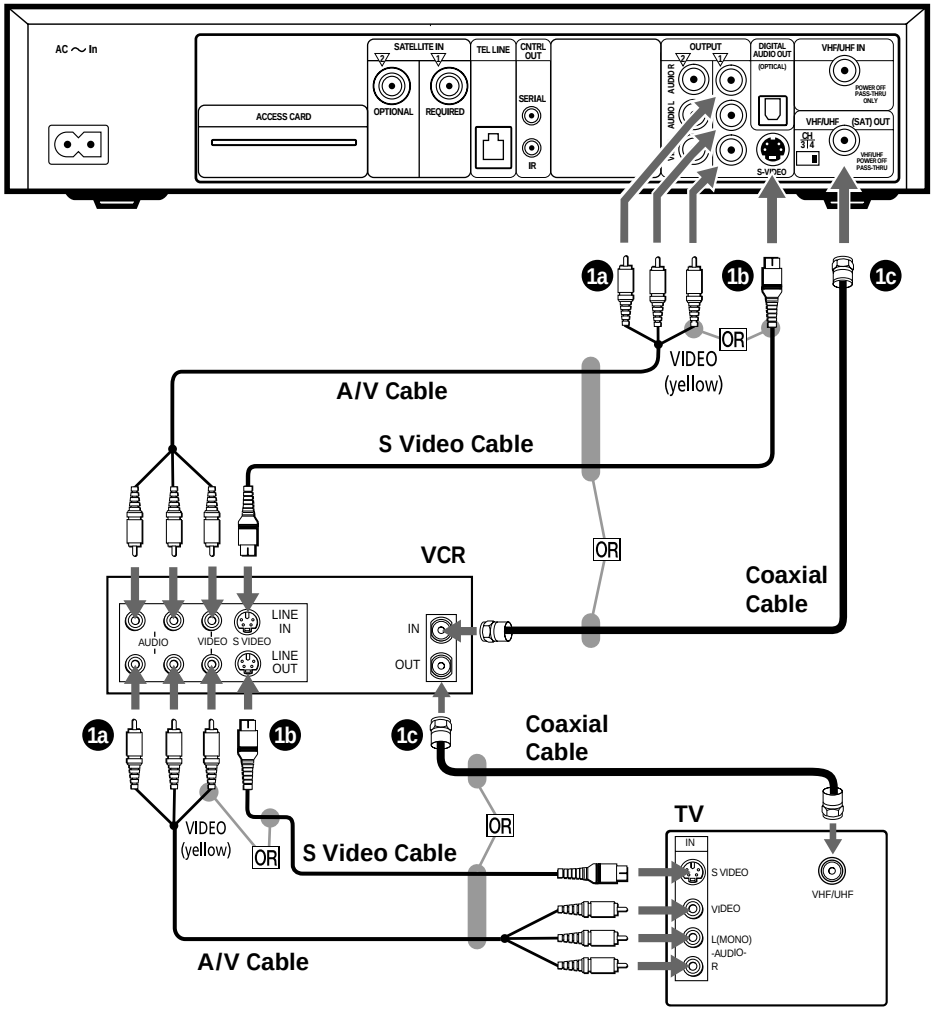
Notes

- With this connection, your input source is channel 3 or channel 4 on your TV depending on how you set the CH 3 | 4 switch on the Satellite Receiver.
- If you connect using 2a or 2b, you can connect your local TV antenna or cable company service to the TV's VHF / UHF input directly.

Step 3: Adding a VCR (Advanced Connection)

You can save recorded programs by adding a VCR.

Satellite Receiver



1a If your TV and VCR have A/V jacks

Connect the AUDIO / VIDEO OUTPUT jacks of your Satellite Receiver to the A / V input jacks of your VCR using the supplied A / V cable.
Then, connect the A / V output jacks of your VCR to the A / V input jacks of your TV using an A / V cable. (Be sure to match the colors on the jacks with the colored plugs on the A / V cable.)

1b If your TV and VCR have S-Video jacks

Use an S-Video cable (supplied) instead of the yellow video connection shown in 1a.

Tip

To allow your Satellite Receiver to control the recording functions of your Sony VCR, see "Step 4: Connecting the IR Controller (Advanced Connection)" on page 22.

1c If your TV and VCR do not have A/V jacks

Connect the VHF / UHF (SAT) OUT jack on the Satellite Receiver to the VHF / UHF input jack on your VCR using coaxial cable.
Then, connect the VHF / UHF output jack on your VCR to the VHF / UHF input jack on your TV using coaxial cable.
Set the CH 3 | 4 switch of your VCR to the channel that does not carry broadcasts in your area.

Note

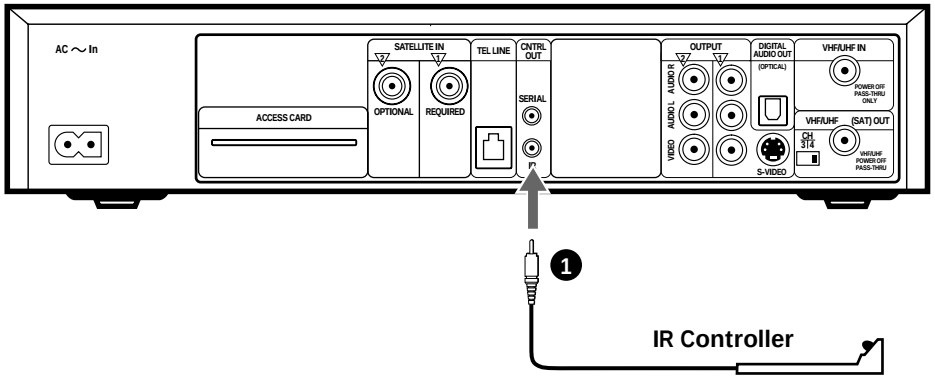
With this connection, your input source is channel 3 or channel 4 depending on how you set the CH 3 | 4 switch on your VCR.

Step 4: Connecting the IR Controller

(Advanced Connection)

If you connected a Sony VCR in Step 3, you can let the Satellite Receiver control recording functions by connecting the IR (Infrared) Controller.

Satellite Receiver

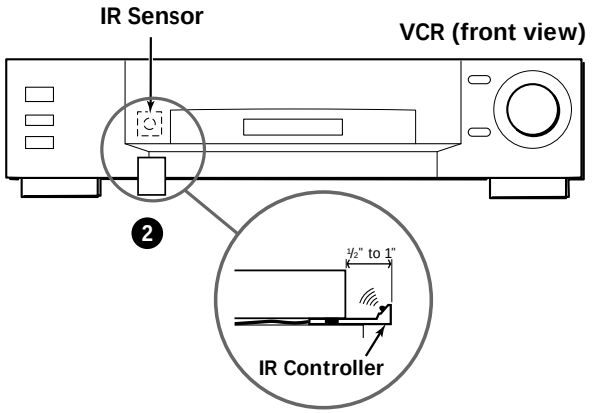


1 Connect the IR Controller to the IR CNTRL OUT jack on the Satellite Receiver.

2 Place the IR Controller under and in front of the VCR.
The IR Controller must extend just in front of the infrared sensor of the VCR.

Tip

If the infrared sensor is not marked on your Sony VCR, refer to your VCR's operating instructions.



Step 5: Adding an Audio System

(Advanced Connection)

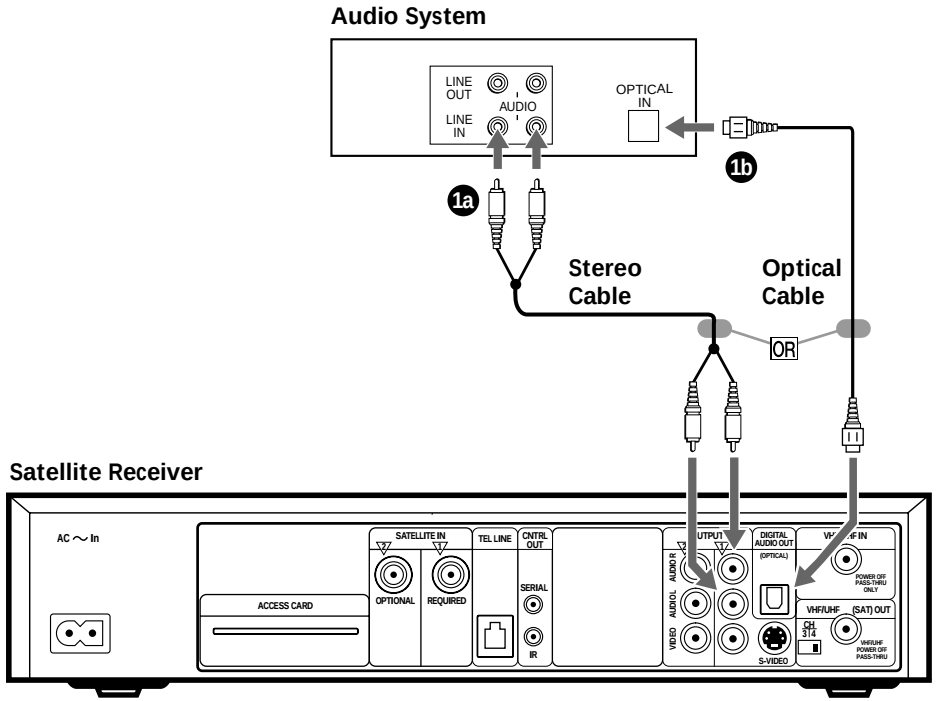
You can connect your Satellite Receiver to an audio system for enhanced sound enjoyment.

1a **If you have a stereo or Dolby® Pro Logic® audio system**
Connect the AUDIO R and L jacks on the Satellite Receiver to the audio inputs of your audio system.

1b **If you have a digital or Dolby Digital audio system**
Connect the DIGITAL AUDIO OUT (OPTICAL) jack on the Satellite Receiver to the optical digital input of your audio system.

Tip

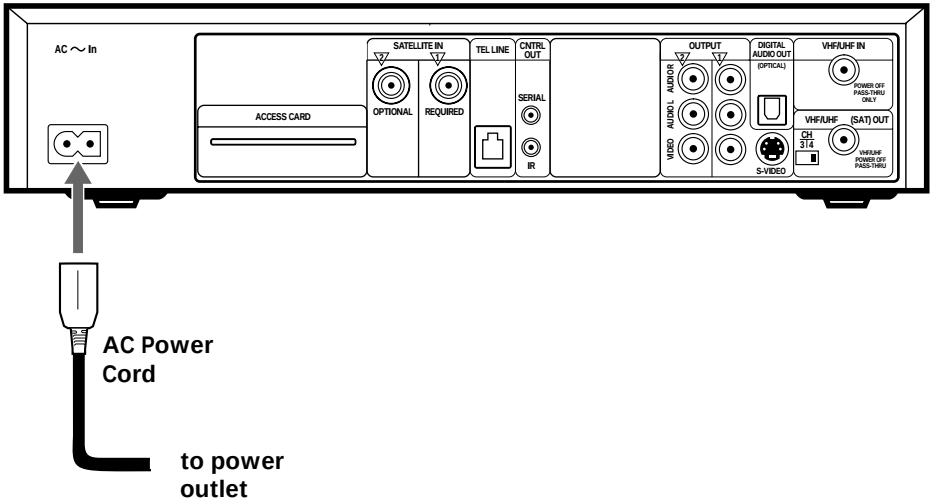
If you connect your Satellite Receiver to a Dolby Digital receiver, refer to the Viewer's Guide for more information on how to set up Dolby Digital.



Step 6: Connecting the AC Power Cord

After all other connections are complete, connect the AC power cord to the Satellite Receiver and a power outlet.

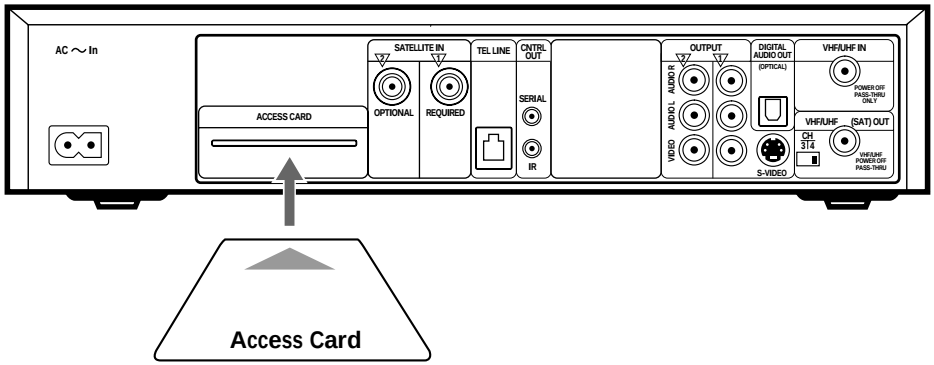
Satellite Receiver



Step 7: Inserting the Access Card

You must verify that the Access Card is securely inserted into your Satellite Receiver to make your DIRECTV service available. Refer to the Access Card for instructions on which direction to insert the card.

Satellite Receiver



Installation is complete

After you insert the Access Card, the installation of your Satellite Receiver is complete. The remaining steps you must complete to begin enjoying your Satellite Receiver are:

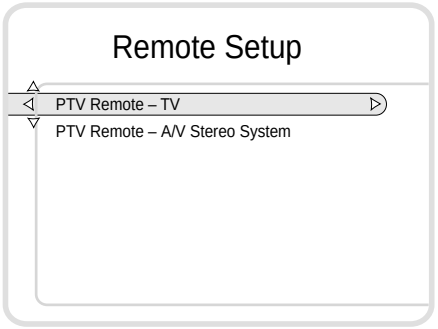
- Install your Satellite Dish Antenna outside your home.
  - Refer to the Satellite Dish Antenna installation manual.
- Aim the Satellite Dish Antenna to get the strongest possible signal.
  - Refer to the Viewer's Guide.
- Activate DIRECTV programming and TiVo Service.
  - Refer to the Viewer's Guide and call 1-800-DIRECTV (347-3288).

Programming Your Remote Control

You must complete "Guided Setup" in the Viewer's Guide before you can program your Remote Control.

You can program your Remote Control to operate your TV's power, muting, volume, and change the TV's input source using the TV / VIDEO button. You can also program your Remote Control to operate the volume of your audio system if your audio system is connected to your TV.

Follow these steps to program your Remote Control using the on-screen Code Entry method. If this method does not work, try the Code Search method (page 29).



Notes

- The actual screens that appear may be different from those shown in this manual.
- This Remote Control cannot operate your VCR. Use your VCR's remote to operate your VCR.

1 Start at TiVo Central or the DIRECTV Menu.

Press the TiVo button to go to TiVo Central, or press the MENU button to go to the DIRECTV Menu.

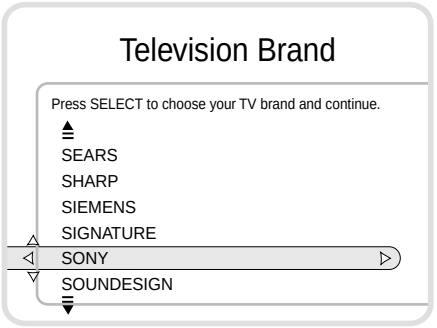
2 Open "Remote Control Setup" using the ↑/↓/←/→/SELECT buttons.

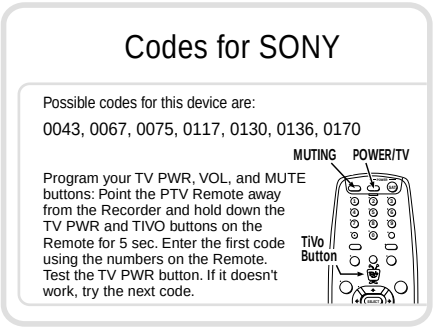
a) Highlight and select "Messages & Setup". The Messages & Setup screen appears.

b) Highlight and select "Receiver and Phone Setup".

c) Highlight and select "Remote Control Setup". The Television Brand screen appears.

continued




Codes for SONY
Possible codes for this device are:
0043, 0067, 0075, 0117, 0130, 0136, 0170
Program your TV PWR, VOL, and MUTE buttons: Point the PTV Remote away from the Recorder and hold down the TV PWR and TIVO buttons on the Remote for 5 sec. Enter the first code using the numbers on the Remote. Test the TV PWR button. If it doesn't work, try the next code.
MUTING
POWER/TV
TiVo Button

Note

If you connected an audio system to your Satellite Receiver, you can program the Remote Control's POWER / TV, VOL (volume) and MUTING buttons to operate your audio system rather than your TV. In step 2c on the previous page, select "Remote A / V Stereo System", and continue the procedure.

3 Highlight and select your TV brand using the ↑/↓/←/→/SELECT buttons.

The available codes for your TV brand appear.

4 Enter the Remote Control code.

a) Cover the IR emitter on the front end of the Remote Control. This prevents the Remote Control from operating your Satellite Receiver while you program the Remote Control.

b) Press and hold the TiVo and POWER / TV buttons at the same time until the Remote Active indicator lights (about three seconds), then release the buttons. The indicator remains lit.

c) Use the number keys to enter one of the four-digit codes listed for your TV brand. The indicator flashes three times, indicating that you entered the code correctly.

d) Test the code by aiming your Remote Control at the TV and pressing the POWER / TV button. If the TV turns off, you have programmed the correct code.

e) If the Remote Control did not turn off your TV, repeat steps 4a through 4d and try the next code listed for your TV.

Code Search Method

The Remote Control has hundreds of available codes. The correct code for your TV might be available, even if it is not listed for your TV brand in the on-screen Code Entry method.

Notes

- The Code Search method automatically programs the POWER/TV, VOL +/–, and MUTING buttons on the Remote Control.
- If you have an audio system connected to the Satellite Receiver, you can program the POWER/TV button on the Remote Control to turn on and off both the audio system and your TV. To do so, use code 1999 instead of 0999 in step 1b.
- To reset the Remote Control back to the manufacturer's settings, enter code 0981 in step 1b.

1 Set the Remote Control to Code Search mode.

a)Press and hold the TiVo and POWER/TV buttons at the same time until the Remote Active indicator lights (about three seconds), then release the buttons. The indicator remains lit.

b)Using the number keys on the Remote Control, enter 0999.

2 Test the code.

a)Aim the Remote Control at the TV, press POWER/TV and see if the TV turns off or on.

b)If the TV does turn off and on, press MUTING and VOL (volume) +/– to make sure they operate the TV. If these buttons operate the TV, go to step 4 below.

3 Press the CH (channel) + button to cycle to the next code, then test the code by repeating step 2 above.

The Remote Control has hundreds of available codes. If the Remote Active indicator goes out, you have tested all of the codes.

4 Press ENTER to set the code and exit Code Search mode.

Press CLEAR to exit Code Search mode without setting a new code.

Troubleshooting

DIRECTV, TiVo and Sony are dedicated to providing you with quality support and customer service. If you have any questions or difficulties, first refer to the troubleshooting section in each manual. If you still need help, see below for the appropriate customer service department to contact:

Contact Sony at 1-877-585-SONY (7669) if you need assistance with:

- Connecting your Satellite Receiver with your TV and other A/V equipment.
- Initial Guided Setup difficulties (e.g. phone calls failing).
- Programming the Remote Control to control your TV or A/V equipment.
- A system that does not function properly after restart.
- Questions about your Limited Warranty.

Contact DIRECTV and TiVo customer support at 1-800-DIRECTV (347-3288) if you need assistance with:

- Activating DIRECTV® programming.
- Activating or using a feature of the TiVo Service.
- Getting correct Program Guide data.
- Understanding an on-screen message from TiVo regarding your TiVo Service account.

You can also refer to the FAQ's listed in the web sites below.
DIRECTV: *http://www.directv.com*
TiVo: *http://www.tivo.com*
Sony: *http://www.sony.com/service* or email at *custserv@info.sel.sony.com*

When you call DIRECTV, you will need to reference your account number and/or Access Card number.

When you call either DIRECTV or Sony, you will need to reference your model and serial number located on the inside of the back cover of the Viewer's Guide.

Symptom	Solution

My Satellite Receiver isn't making the setup phone calls.	• Do not use a wireless phone connection.
	• Verify that your phone line is working by disconnecting the phone cord from your Satellite Receiver, connecting it to a phone, and checking for a dial tone.
	• Make sure the phone cord is connected to the Satellite Receiver and the wall jack.
	• If you are getting a busy signal when connecting, try another local dial-in number from the Dial-In Number screen or try the call during off peak hours, before 3 pm or after 11 pm.
	• Try changing your phone dialing options by following the steps below. After making changes to phone dialing options, make a test call (press the TiVo button to go to TiVo Central, then choose Messages & Setup, then Receiver & Phone Setup, then Phone Connection and select "Make Test Call").
	  • If you have voice mail or other non-standard dial tone, press the TiVo button to go to TiVo Central, then choose Messages & Setup, then Receiver & Phone Setup, then Phone Connection, then Change Dialling Options and turn off "dial tone detection".
	  • If you have call waiting, press the TiVo button to go to TiVo Central, then choose Messages & Setup, then Receiver & Phone Setup, then Phone Connection, then Change Dialling Options and disable call waiting by entering the correct prefix in "Call Waiting Prefix" (usually "*70,").
	  • If you use a dial prefix for outside lines, press the TiVo button to go to TiVo Central, then choose Messages & Setup, then Receiver & Phone Setup, then Phone Connection, then Change Dialing Options and set the "Dial Prefix" (for example, "9,").

continued

Symptom	Solution
My Satellite Receiver isn't making the setup phone calls. (continued)	• If you have a low-voltage phone line, press the TiVo button to go to TiVo Central, then choose Messages & Setup, then Receiver & Phone Setup, then Phone Connection, then Change Dialling Options and turn off "phone availability detection". • If you have a caller ID box, try removing it from the line since some models interfere with the Satellite Receiver modem's ability to make a call. • If you use a fax machine or computer modem connected to the same phone line, make sure they are not using the line while your Satellite Receiver is trying to make a call. • It could be that you have too much line noise to make a connection. The Satellite Receiver ships with a 50 foot cord. try a shorter cord, or you can buy a line noise filter at your local electronics store.
When I turn on my TV, "Searching for Satellite Signal..." appears.	Your Satellite Receiver is having trouble tuning to the channel you are on. Follow these steps to restore the video: • Try changing channels. If you see the same message on every channel, your video cable may not be connected. Check to make sure all the satellite connections on the back of your Satellite Receiver are secure. • Disconnect the AC power cord, wait 15 seconds, then connect the AC power cord again. • Try using another set of video cables to determine if one of your cables is not working. • Check the position of the dish antenna.

Symptom	Solution
Audio/Video is out of sync.	• Try changing channels. • Press the PAUSE button on the Remote Control, press the BACK button to move back a frame or two, then press PAUSE again to resume play. • Press the MENU button to go to the DIRECTV Menu, then press the LIVE TV button to return to live television. • Disconnect the AC power cord, wait 15 seconds, then connect the AC power cord again. • If you are using your stereo to reproduce the audio portion of the program, it must be hooked up to the Satellite Receiver to avoid an audio/video delay.
I do not see the Welcome Screen when I turn on my Satellite Receiver for the first time.	• If you are using Composite Video and L/R Audio cables or S-Video cables, make sure your TV is displaying the appropriate video source. You may need to use the "Input", "Source", "Select", or TV/Video" button on your TV to change video sources. If you are having trouble changing the video source, refer to the instructions that came with your TV. • If you used coaxial RF cable to connect your Satellite Receiver, make sure you are viewing the same channel (3 or 4) that you selected using the switch on the back of your Satellite Receiver. • If your Satellite Receiver is connected to a VCR using coaxial RF cable, make sure the VCR's input is set to the same channel (3 or 4) that you selected using the switch on the back of your Satellite Receiver. • If your Satellite Receiver is connected to an A/V receiver or switch box, try connecting it directly to the TV instead. • Make sure cables are connected from the output jack of one device to the input jack of another device. Cables should never be connected from output jack to output jack or input jack to input jack.

continued

Symptom	Solution
I do not see the Welcome Screen when I turn on my Satellite Receiver for the first time. (continued)	• The cables you are using to connect your Satellite Receiver to your TV or other equipment may be damaged or defective. Try exchanging the cables connected to the Satellite Receiver with other cables that you know are working properly.
I'm having trouble watching antenna or cable channels.	• If you have connected the antenna or cable directly to your TV, make sure your TV is using the correct video source. Use the "Input", "Source", "Select", or TV/Video" button on your Remote Control (if programmed), or your TV, or your TV remote control to change to change the video source. Some TVs also have a "Menu" button that allows you to change the video source using an on-screen menu. If you are having trouble changing the video source, refer to the instructions that came with your TV. • If you have the antenna or cable connected to your Satellite Receiver, make sure the Satellite Receiver is in standby mode by pressing the POWER button on the front of the Satellite Receiver or POWER/SAT on the Remote Control. The green power light on the front of the Satellite Receiver goes out when the Satellite Receiver is in standby mode. • While you are watching antenna or cable channels you will be unable to use DIRECTV and TiVo functions (such as purchasing pay per view programs, using parental controls, viewing on-screen program guides, or pausing live TV).
I'm having trouble using my Satellite Receiver to record antenna or cable channels.	• The Satellite Receiver only records DIRECTV Channels. You can watch antenna or cable channels while recording DIRECTV channels. However, you will not be able to use your Satellite Receiver to record cable or antenna channels.

Symptom	Solution
My Remote Control is not working properly.	• Make sure that the batteries are inserted correctly. • Try removing the batteries and reinserting them without touching any buttons on the Remote Control. • Replace the batteries with new ones. • If you are watching antenna or cable channels, you must set the TV / SAT switch on the Remote Control to “TV”. • If you are using the Remote Control to operate your TV, stereo, or A / V receiver, make sure you have programmed the Remote Control properly.
I’m having problems with my Access Card.	• Make sure the Access Card is inserted properly. If the card is not protruding at least one quarter inch from the back panel of the Satellite Receiver, the Access Card has been inserted incorrectly. • If you are replacing an existing Satellite Receiver, make sure you are using the Access Card that came with this Satellite Receiver, not the Access Card that was used your old Satellite Receiver.

Specifications

Inputs and outputs

Video Out
- S-Video 4-pin mini DIN (1)
- Composite Video RCA (2)

Audio Line Out
- Stereo L/R RCA (2 pairs)

Satellite In
- F-connector Female (2)

VHF/UHF In
- F-connector Female (1)

VHF/UHF (SAT) Out
- F-connector Female (1)

Digital Audio Out
- Optical (1)

Telephone
- RJ-11 female, 2 wire (1)

Control Out
- 3.5 mm mini jack sockets (2)

General

Power requirements
- 120 V AC, 60 Hz

Power consumption
- 60 W

Operating temperature
- 21°C to 45°C (70°F to 113°F)

Operating Humidity
- 5% to 80%

Dimensions
- Approx. 381 × 76 × 325 mm (w/h/d)
- (Approx. 15 × 3 × 12 $^{13}/_{16}$ inches) including projecting parts and controls

Mass
- Approx. 4.6 kg (10 lbs)

Supplied accessories

Remote Control (1)
Size AA (R6) batteries (2)
AC power cord (1)
RF Coaxial cable (1)
Audio/Video cable (1)
IR Control cable (1)
S-Video cable (1)
Phone cord (1)
Phone splitter (1)
Access Card (1)

Optional Sony-brand Digital Satellite Receiver Accessories

Local TV Antenna
- ANJ-AA1

Installation Kit
- ANJ-DS2

Amplifier
- EAC-DA1

Diplexer
- EAC-DD1

Voltage Switch
- EAC-DV2

Satellite Dish Antenna
- SAN-18D3
- SAN-24MD1

This device complies with Part 68 of the FCC rules. The FCC Part 68 label is located on the back of this product. This label contains the FCC number for this equipment and the Ringer Equivalence Number (REN). If requested, this information must be provided to your telephone company.

FCC Regulations and Information

Your Satellite Receiver has been registered by the Federal Communication Commission (FCC) as not being harmful to the telephone network when connected directly to the telephone lines. In order to fully comply with the Rules of the FCC, the following instructions should be read carefully and followed completely where applicable:

1 The Federal Communication Commission (FCC) has established Rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin phones.

2 If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until repair has been made. If this is not done, the telephone company may temporarily disconnect service.

3 The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes. You will be advised of your right to file a complaint with the FCC.

4 If the telephone company requests information on what equipment is connected to their lines, inform them of:

a. The telephone number to which this unit is connected.
b. The ringer equivalence number.
c. The USOC jack required.
d. The FCC Registration Number.

5 Items (b) and (d) are indicated on the label. The Ringer Equivalence Number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5). If too many devices are attached, they may not ring properly.

Service Requirements

In the event of equipment malfunction, all repairs should be performed by Sony or an authorized agent. It is the responsibility of users requiring service to report the need for service to our company or to one of our authorized agents. For service, call 1-877-585-SONY (7669).

Declaration of Conformity

Trade Name:	Sony
Model No.:	SAT-T60
Responsible Party:	Sony Electronics Inc.
Address:	1 Sony Drive, Park Ridge, NJ 07656 USA
Telephone No.:	201-930-6972

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Radio Interference Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception (which you can determine by turning the equipment off and on), you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna (the antenna for radio or television that is receiving the interference)
- Change the position of the Satellite Receiver with respect to the radio or television equipment that is receiving the interference
- Move the Satellite Receiver away from the equipment that is receiving the interference
- Plug the Satellite Receiver into a different outlet so that the Satellite Receiver and the equipment receiving the interference are on different branch circuits

Shielded I/O cable and cords must be used for this equipment to comply with the relevant FCC regulations. Changes or modifications not expressly approved in writing by Sony Electronics, Inc., void the user's authority to operate this equipment.

If these measures do not eliminate the interference, you should consult your Satellite Receiver dealer or an experienced radio/television technician for additional suggestions. In addition, you may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402 Stock No. 004-000-00345-4.

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General

This Agreement shall be deemed to have been made and executed in the State of California and both parties agree that any dispute arising hereunder related to this Agreement or the Product will be governed by laws of the State of California, exclusive of its conflicts of law principles and that the courts in the County of San Diego, California will have exclusive jurisdiction over all such disputes. FURTHER THE PARTIES HEREBY WAIVE TRIAL BY JURY IN CONNECTION WITH ANY ACTION OR SUIT ARISING UNDER THIS AGREEMENT OR OTHERWISE ARISING FROM THE RELATIONSHIP BETWEEN THE PARTIES HERETO. This Agreement shall be binding upon the parties' authorized successor and assignees. Neither party's waiver of any breach or failure to enforce any of the provisions of this Agreement at any time shall in any way affect, limit or waive such party's right thereafter to enforce and compel strict compliance with every other provision. No modification of this Agreement shall be effective unless in writing signed by both parties.

Limited Warranty

Digital Satellite Receivers

SONY ELECTRONICS INC. (“SONY”) warrants this Product against defects in material or workmanship as follows:

1. Labor: For a period of 90 days from the original date of purchase, if the Product is determined to be defective, SONY will repair or replace the Product at no charge. After this 90 day period, you must pay for all labor charges.
2. Parts: For a period of one year from the original date of purchase, SONY will supply, at no charge, new or rebuilt replacements in exchange for defective parts. Any replacements will be warranted for the longer of the remainder of the original warranty period or 90 days from the installation of the parts by a SONY authorized DIRECTV System installer or facility.

To obtain warranty service:

– If the Product was installed by a SONY authorized DIRECTV System installer, contact that installer for instructions.

– If the Product was not installed by a SONY authorized DIRECTV System installer, you must take the Product or deliver the Product in either its original packaging or packaging affording an equal degree of protection (with freight prepaid), to a SONY authorized DIRECTV System service facility. To locate the closest such facility, please call the telephone number listed below.

This warranty does not cover customer instruction, installation, set up adjustments or signal reception problems. This warranty does not cover cosmetic damage or damage due to accident, misuse, abuse, negligence, commercial use, or modification of, or to any part of the Product. This warranty does not cover improper installation (if not installed by a SONY authorized DIRECTV System installer), loss of use of the Product, or wasted programming charges due to Product malfunction. This warranty does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair by anyone other than a facility authorized by SONY to service the Product. This warranty does not cover Products sold AS IS or WITH ALL FAULTS. This warranty is valid only in the United States. Proof of purchase in the form

of a bill of sale or receipted invoice which is evidence that the Product is within the Warranty period must be presented to obtain warranty service.

REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. SONY SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT. IN NO EVENT SHALL SONY BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT. UNDER NO CIRCUMSTANCES SHALL SONY'S LIABILITY, IF ANY, EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

This warranty is invalid if the factory applied serial number has been altered or removed from the Product. Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. In addition, if you enter into a service contract with the SONY Partnership within 90 days of the date of sale, the limitation on how long an implied warranty lasts does not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

For your convenience, SONY ELECTRONICS INC. has established telephone numbers for frequently asked questions:

For assistance with installation, contact the dealer from whom you purchased your Digital Satellite Receiver / Recorder.

For product information or operation, for service assistance or for resolution of a service problem, call:

SONY SATELLITE SYSTEM INFORMATION CENTER
1-800-838-SONY (7669)

For an accessory or part not available from your authorized dealer, call:

1-800-488-SONY (7669)

Refer to this Installation Guide (specifically the Troubleshooting section) for questions about your Warranty, connecting the Satellite Receiver, initial Guided Setup difficulties (e.g. phone calls failing), programming the Remote Control, or if your system does not function properly after restart. If you still have questions, contact Sony at:

1-877-585-SONY (7669)
http://www.sony.com/dnr

Refer to the Viewer's Guide for questions about DIRECTV and TiVo Service activation, Program Guide data, or on-screen messages from TiVo regarding your Service account. If you still have questions, contact DIRECTV and TiVo at:

1-800-DIRECTV (347-3288)
http://www.directv.com

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